JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES

VOL. 43. No. 2 — 23 NOVEMBER 1935

CONTENTS FOR 23 NOVEMBER 1935

	Page
PAVILION IN THE GARDENS OF SUMMER PALACE, NEAR PEKING	*Frontispiece*
JOURNAL	55
HOUSING AND THE REDEVELOPMENT OF CENTRAL AREAS. L. H. Keay, O.B.E. [*F.*]	57
VOTE OF THANKS AND DISCUSSION	68
EARLY CHINESE PALACES AND TEMPLES. Arnold Silcock [*F.*]	77
THE DOMESTIC USES OF ELECTRICITY. Architect: Adrian E. Powell [*A.*]	88
REVIEW OF CONSTRUCTION AND MATERIALS	93
BOOK REVIEWS:	
INDIAN ARCHITECTURE. A. G. Shoosmith [*A.*]	97
A COURSE IN BUILDING CONSTRUCTION. K. H. Read [*A.*]	97
OXTED AND LIMPSFIELD	98
ENGLISH BRICKWORK	98
THE TECHNIQUE OF BRICKLAYING	98
AMERICAN TEXTBOOK ON ENGINEERING EQUIPMENT	98
HOUSING MEMORANDA EXPLANATORY OF THE HOUSING ACT, 1935	99
QUANTITY SURVEYING. J. W. Theobald, F.S.I.	99
PLUMBING ACCORDING TO COCKER	99
REVIEW OF PERIODICALS	100
ACCESSIONS TO LIBRARY	101
CONCERT OF OLD MUSIC ON OLD INSTRUMENTS. Professor Patrick Abercrombie [*F.*]	102
CORRESPONDENCE:	
THE RE-PLANNING OF BATH. Professor Patrick Abercrombie [*F.*]	103
THE ASSOCIATION OF SCIENTIFIC WORKERS. Bernard W. Holman	103
A.G.R.C. F. H. Mansford [*F.*]	103
OBITUARIES:	
MAJOR G. A. HARRIS, C.B.E., D.S.O. W. H. Ansell [*F.*]	103
O. CLUSE HILLS [*F.*]	104
H. W. CRUICKSHANK [*F.*]	104
JOHN HALL [*Retd. F.*]	104
J. S. DAVIS [*Retd. F.*]	104
E. J. DOLMAN [*L.*]	104
W. K. MUNRO [*L.*]	104
NOTES	105
ALLIED SOCIETIES	105
NOTES FROM MINUTES OF COUNCIL	107
NOTICES	108
COMPETITIONS	109
MEMBERS' COLUMN	110
MINUTES II	111
ARCHITECTS' AND SURVEYORS' APPROVED SOCIETY	112
ARCHITECTS' BENEVOLENT SOCIETY	112

IN THE GARDENS OF THE SUMMER PALACE, NEAR PEKING

Modern type of pavilion look-out tower showing traditional combination of masonry and timber superstructure, from a photograph by Mr. Arnold Silcock [*F.*]

(*See page* 77)

JOURNAL OF THE
ROYAL INSTITUTE *of* BRITISH ARCHITECTS

VOL. 43. 3RD SERIES 23 NOVEMBER 1935 No. 2

Journal

THE ADVISORY COMMITTEE ON HOUSING

Sir Kingsley Wood, Minister of Health, has appointed the Central Housing Advisory Committee under the new Housing Act.

The Committee, as a statement by the Ministry of Health points out, will from time to time advise the Minister and local House Management Commissioners on specific questions which may be referred to it, and will also be available for consultation by the Minister on any questions connected with housing administration generally. The Committee is empowered also to make representations to the Minister on any question of general concern in relation to housing. It will thus be able to contribute collectively a wide intimacy with the conditions and needs of housing work, and men and women of wide practical experience in every main sphere of the working-class housing problem have consented to serve on the Committee.

The Chairman will be the Minister, and the Vice-Chairman the Parliamentary Secretary to the Ministry, and the following are the other members :—

Lord Balfour of Burleigh, Sir Harold Bellman, M.B.E., Mr. G. M. Burt, the Earl of Crawford and Balcarres, K.T., Mrs. M. M. Dollar, J.P., the Earl of Dudley, M.C., D.L., Sir Francis Fremantle, M.P., O.B.E., M.A., M.D., etc., Miss Megan Lloyd George, M.P., Mr. George Hicks, M.P., Alderman A. L. Hobhouse, J.P., Mr. L. H. Keay, O.B.E., F.R.I.B.A., the Countess of Limerick, C.B.E., Mr. O. Ling, J.P., Alderman Sir Miles Mitchell, J.P., Mr. C. J. Newman, Alderman E. G. Rowlinson, J.P., Major Sir Isidore Salmon, M.P., C.B.E., J.P., D.L., the Rev. E. St. G. Schomberg, Mr. L. Silkin, L.C.C., Mr. J. A. Simpson, O.B.E., LL.B., Sir Raymond Unwin, P.P.R.I.B.A., Mr. J. A. F. Watson, Sir Seymour Williams, K.B.E., Mr. J. Greenwood Wilson, M.D., M.R.C.P., D.P.H., the Bishop of Winchester, D.D.

The Ministry of Health Order which sets out the constitution and procedure of the Committee provides that at the end of one, two, and three years respectively from the first appointment of the Committee one-third of the original members, to be selected by lot, shall go out of office ; afterwards members are to hold office for three years, but may be reappointed. The Secretary to the Committee is Mr. H. H. George, M.C., to whom all communications should be addressed at the Ministry of Health, Whitehall, S.W.1.

1935 HOUSING ACT TIME-TABLE

Another notice of importance which has recently been issued from the Ministry of Health is a circular giving the time-table for successive stages in the work under the 1935 Housing Act. The publication of the time-table definitely carries the plans which have been made to eliminate overcrowding a stage further. Local authorities are bound under the Act to institute surveys of the overcrowding conditions in their areas ; these must be completed by 1 April 1936 ; the reports on their needs, which are the first outcomes of the survey, must be submitted by 1 June 1936, and their definite proposals for the relief of overcrowding by 1 August 1936. This schedule should allow ample time for thorough surveys and reports to be made. It is sincerely to be hoped that the authorities concerned will set themselves to this work with the keenness that the urgency of the problem justifies.

THE EXHIBITION OF CHINESE ART

The Exhibition of Chinese Art opens at the Royal Academy on Thursday next, 28 November. This will be the fifth of the great exhibitions of foreign art which the Royal Academy has offered to British people, and to many it promises to be perhaps the most interesting of them all. Like the Persian exhibition, it will range far beyond the confines of pictorial art, though there will not be the same opportunity that there was in that exhibition to represent architecture in full-size models and details. It is partly for this reason that we publish in this number of the

JOURNAL Mr. Arnold Silcock's article on Chinese architecture to give the proper architectural background to the marvels of Chinese craftsmanship. Architects are, fortunately, in no danger now of seizing on the details of foreign art as the basis of a revivalist style, as was done by Sir William Chambers and the furniture designers of the eighteenth century, nor are our painters now inclined to attempt the more personal assimilation of such as Whistler or Conder.

Among the later exhibits in the Persian exhibition were several examples of Persian painting showing the influence of western art on eighteenth-century Persian painters, and there are many similar examples known to most people of Indian painting under the influence of European art forms. We shall have our opportunity of seeing to what extent the Chinese designers have surrendered to the influence of the West; when Chambers wrote in 1757 he could say "whatever is really Chinese has at least the merit of being original: these people seldom or never copy or imitate the inventions of other nations"; so all but, perhaps, our dress designers, can go to enjoy and not to trade on something new to us to replenish our own inspiration. "It is difficult to avoid praising too little or too much. The boundless panegyrics which have been lavished upon the Chinese learning, policy, and arts, show with what power novelty attracts regard and how naturally esteem swells into admiration. I am far," wrote Chambers, "from desiring to be numbered among the exaggerators of Chinese excellence. I consider them as great, or wise, only in comparison with the nations that surround them; and have no intention to place them in competition either with the ancients, or with the moderns of this part of the world, yet they must be allowed to claim our notice as a distinct and very singular race of men . . . who have formed their own manners, and invented their own arts, without the assistance of example."

"YOU ENGLISH"

Next Friday and Saturday the R.I.B.A. Dramatic Society will open their season with the first presentation of Mr. Hope Bagenal's comedy, "You English." Mr. Bagenal is known to the readers of this journal in a variety of roles which, despite their variety, hardly do justice to his erudition, but it will be new, perhaps, to most people to see him as a playwright and a critic of modern manners other than architectural. The performances on both evenings will start at 8.30 p.m. Tickets, which cost 5s. 9d., 3s. 6d. and 2s. 4d., can be obtained by members of the R.I.B.A. from the Institute, or from Miss Caldicott at the A.A., 36, Bedford Square. Members are asked to apply for their tickets as soon as possible and, of course, to buy the most expensive kind they can afford, to give not only the support of their presence but their purses.

The Dramatic Society, which, with the Dance Club and the Musical Society, is part of the active social organisation of the R.I.B.A., still has room for more members. Whenever the Society is not actually engaged in the rehearsal of a play, it holds regular monthly play readings. There is a small membership subscription, particulars of which and all other facts about the Society can be learned from Miss Caldicott at the A.A.

THE MUSICAL SOCIETY

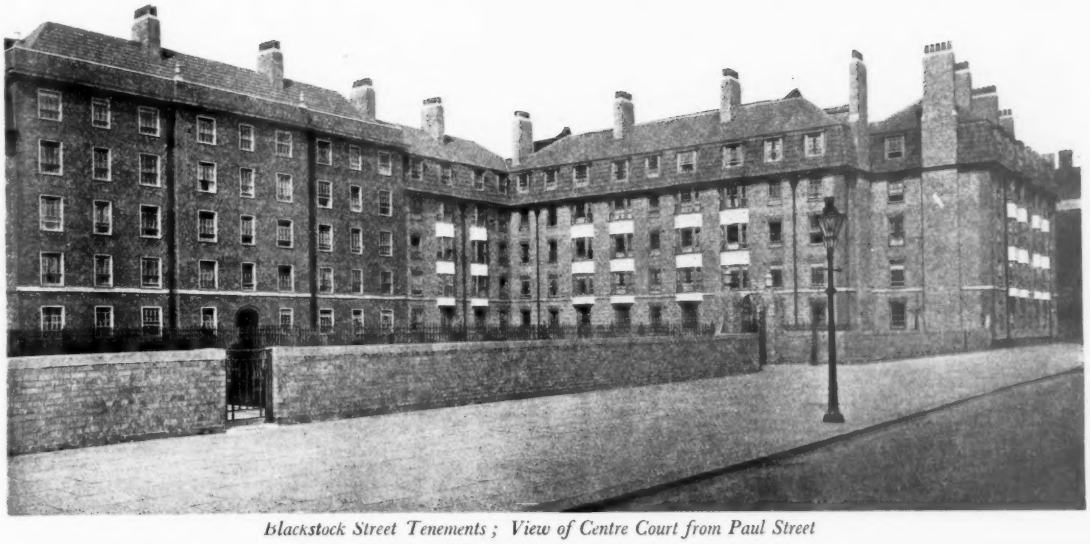
The R.I.B.A. Musical Society, after its successful concert on Monday, November 11, an appreciation of which by Professor Abercrombie appears on p. 102, has decided to give a second concert at the Institute on Monday, 16 December, at 8.30, when a programme of Chamber opera will be performed by a group of young singers, who propose to produce small operas of all types under the direction of Ernest Schoen and Georg Knepler. This group hopes to start stage performances in the near future, and will introduce these to the general public by means of a broadcast and a public concert.

The programme on 16 December will include the Third Act of Purcell's "Dido and Aeneas," a scene from "La Corosse du Saint Sacrement," by Lord Berners, and the Second Act of Donizetti's "Don Pasquale." The full programme will be published in the next number of the JOURNAL.

BOUND VOLUMES OF THE JOURNAL

We wish to remind members of the Institute of the facilities which exist for obtaining bound copies of the R.I.B.A. JOURNAL in exchange for unbound numbers. Any member who returns the complete set of unbound numbers to the Institute, in reasonably good condition, can receive free, in exchange, a volume bound in paper with a linen back. This is strong enough for general occasional use. A fully buckram-bound volume will be sent for an additional payment of seven shillings and sixpence. Every year we have found that more members of the Institute have taken advantage of this offer, so that our stocks have become depleted before the demand has been met. The offer only holds as long as the Institute has bound volumes in stock. Application should be made without delay.

At the Council Dinner preceding the President's Inaugural Address on Monday, 4 November, Mr. Percy Thomas accepted on behalf of the Council Dinner Club a magnificent silver Loving Cup presented by Sir Banister Fletcher, P.P.R.I.B.A. We hope that it will be possible to illustrate this Cup in the next number of the JOURNAL.



Blackstock Street Tenements; View of Centre Court from Paul Street

HOUSING AND THE REDEVELOPMENT OF CENTRAL AREAS

By L. H. KEAY, O.B.E., F.R.I.B.A.

A Paper Read Before the Royal Institute of British Architects on Monday, 18 November 1935, The President, Mr. Percy E. Thomas, O.B.E., F.R.I.B.A., in the Chair.

The statutory obligation to make provision for housing the lower-paid workers of this country has generally been met by the local authorities by the building of single-family houses in suburban areas. It is evident that this method of rehousing those displaced in connection with slum clearance schemes was contemplated under the Housing Act of 1930, for Circular 1138, issued by the Ministry of Health, refers to a higher subsidy being available where "in *exceptional* cases it is shown necessary to rehouse on the acquired sites." The Housing Act, which received the Royal Assent in August of this year, provides the machinery necessary for dealing with another phase of housing, namely, the prevention and abatement of overcrowding.

It is because I know that I have been referred to as "essentially a local authority man," and feel that a satisfactory solution of this phase of the housing problem is not to be found in the further development of suburban estates, that I propose to deal mainly to-night with the urgent necessity for the redevelopment of the overcrowded and slum areas—work which is contemplated under the new Act and which I believe can be better dealt with by the local authorities, assisted by housing associations where co-operative action is possible.

I need only briefly recall some of the conditions which exist in the centre of most large towns to-day. Behind the main thoroughfares are to be found narrow streets, unsuited to modern transport, and often only used as playgrounds by the children of the district; badly planned houses, many erected before the introduction of building bye-laws; a lack of air space, a general low standard of amenity;

and overcrowding. The dwellings are overcrowded, not always because alternative accommodation on the newly developed estates of the authority has been unobtainable, but because the tenants of the older houses, for good reasons of their own, have been unwilling or unable to leave the business areas of the town.

The most casual survey will also disclose the wasteful use of land and buildings; the unsatisfactory street planning; and the almost entire lack of open space and those amenities we now deem essential. Here and there houses which were unsuitable to live in have been adapted for use as small business premises, but which are equally unsuitable to work in. The properties usually belong to a number of small speculators, and for that reason a comprehensive redevelopment scheme by the several owners is unlikely. The only buildings worthy of preservation are those owned by the local authority and the churches, which have often been erected by the contributions of the inhabitants of the locality.

Evidence is not wanting of the unsatisfactory conditions which result by re-building on small isolated sites, and a repetition of individual action by small owners cannot be contemplated. It is largely because this was permitted towards the end of the last century that the undesirable planning of the smaller roads has remained and presents a problem to be dealt with to-day.

When the information ascertained from the housing surveys by local authorities under the new Act is available it will be found that adjacent to those areas which are now the subject of action under the slum clearance proposals there are districts in which overcrowding is considerable, and in which properties are beyond reconditioning. There is, therefore, every reason to anticipate that the local authorities will be compelled to increase their building programmes in order that suitable accommodation may be found for those displaced from the unhealthy and overcrowded dwellings in these districts.

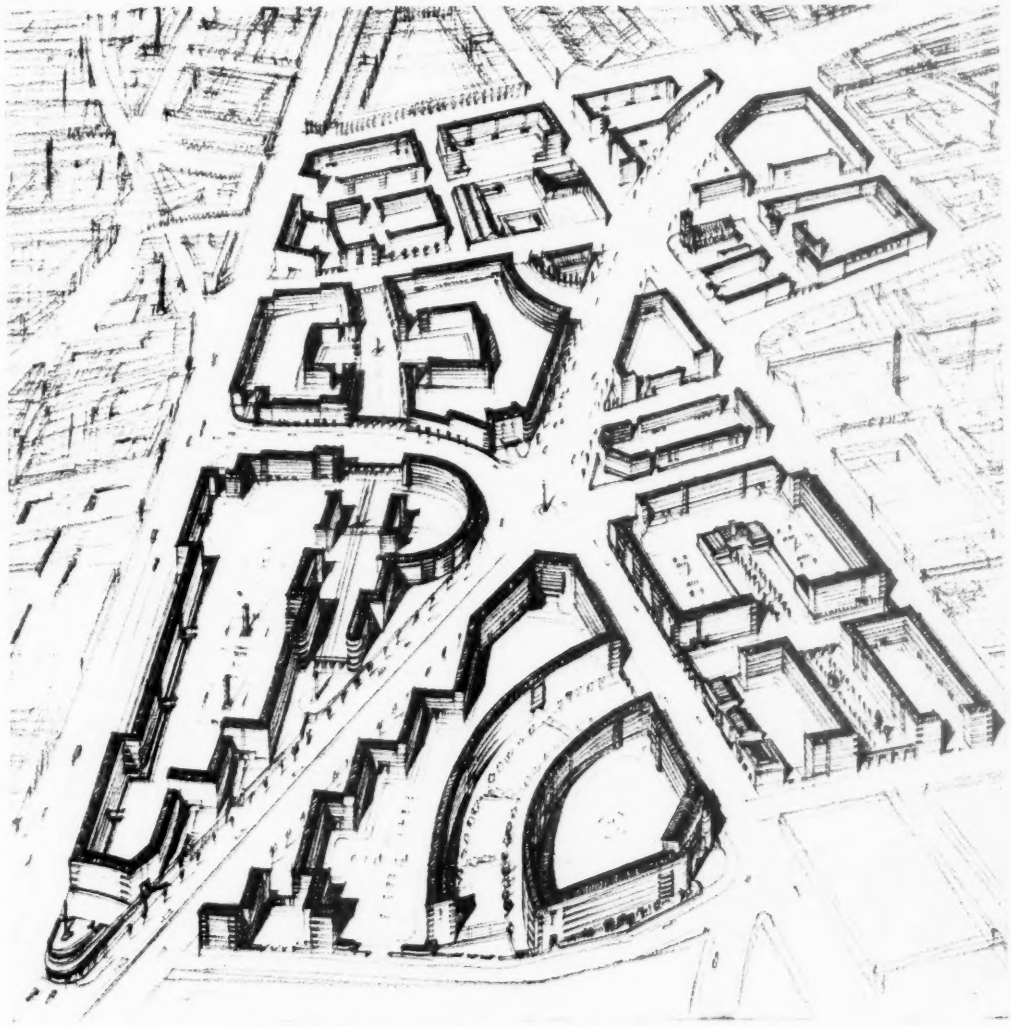
There is still a school of thought led by some housing enthusiasts which urges that the slums should be demolished and the displaced tenants housed in garden suburbs or satellite towns. It is to be assumed that this method will be advocated for the rehousing of those occupying the overcrowded houses discovered in such districts by the housing surveys, thus leaving large areas in the very hearts of our towns with the appearance of devastated areas on a war front. It is difficult to believe that such a suggestion can seriously be advanced. And those who do so surely refuse to recognise that in dealing with this phase of housing it is essential to adopt methods peculiar to the particular problem. The intention of Parliament, however, is quite clear, for the memorandum recently issued to local authorities in connection with the Act of 1935 states that "It is recognised that a solution cannot be found in new building, however intensive, on sites more or less removed from the areas affected," and that "the only way in which overcrowding in such areas can be materially alleviated is by the provision within the areas of suitable accommodation for as many persons as the sites which are or can be made available will allow if adequately developed in accordance with modern standards."

The emphasis of Parliamentary intention therefore is now laid on redevelopment as the normal method, whereas hitherto it was only in exceptional circumstances that its employment could receive ministerial blessing. The importance of this veering of influence on methods cannot be too strongly stressed.

The necessity of attacking the heart of large towns is echoed abroad; in Boston and in Berlin—where we are told that "there are areas in which nothing but absolute clearance can be of any use"—and in Madrid and in Oslo—where a responsible official deplores that "Strange to say, our towns preserve in their interiors, often for centuries, such cancers, which all would rejoice to see removed."

For years the necessity of re-planning the built-up areas of our towns has been urged, and the opportunity now arises for putting theory into practice; "where"—to quote the new Act—"certain conditions obtain, and where it is expedient to make provision for housing accommodation for the working classes, it is essential that any area should be redeveloped as a whole." In these schemes, to be carried out after the closest co-operation of the bodies responsible for housing and town planning, it should be possible to pay attention to both architectural planning as well as to transport necessity.

Since the War the attack on unsatisfactory housing conditions has been made step by step. First the building of houses to overcome the shortage resulting from unproductive and troublous years, and then the clearance of the slums by the replacement of the unsatisfactory houses. Finally, under the



Gerard Street Rehousing and Redevelopment scheme. Aerial View

new Act, an attack is to be made on that condition which produces slums—overcrowding—and the reconditioning of those properties which are capable of being rendered satisfactory for a further period of years. It is because I am confident that it is possible to replace the slums and to rehouse the overcrowded families within the districts they at present occupy by the process of redevelopment that I suggest there need be no anxiety in the minds of those who associate another housing drive by the local authorities with a further absorption of agricultural land. The countryside still can be saved by the redevelopment of our towns so long as the private speculator is curbed in his zeal for destroying country estates to provide "eligible building plots" for "Jerrybethan" villas. The advantages of redevelopment, both to the tenant and the community, as opposed to removal to a suburban estate are readily apparent. The tenant is saved the cost of transport, which is really an added rent charge, and avoids the serious waste of time which travelling to and from some outlying district involves, and the

Speke Road Gardens, Garston. Elevation to Speke Road

community avoids additional transport difficulties in the already congested traffic roads. Light and air, and ample space for recreation, can be provided in the redeveloped area, and existing amenity buildings, services, etc., will continue in use and the duplication of these services will be avoided.

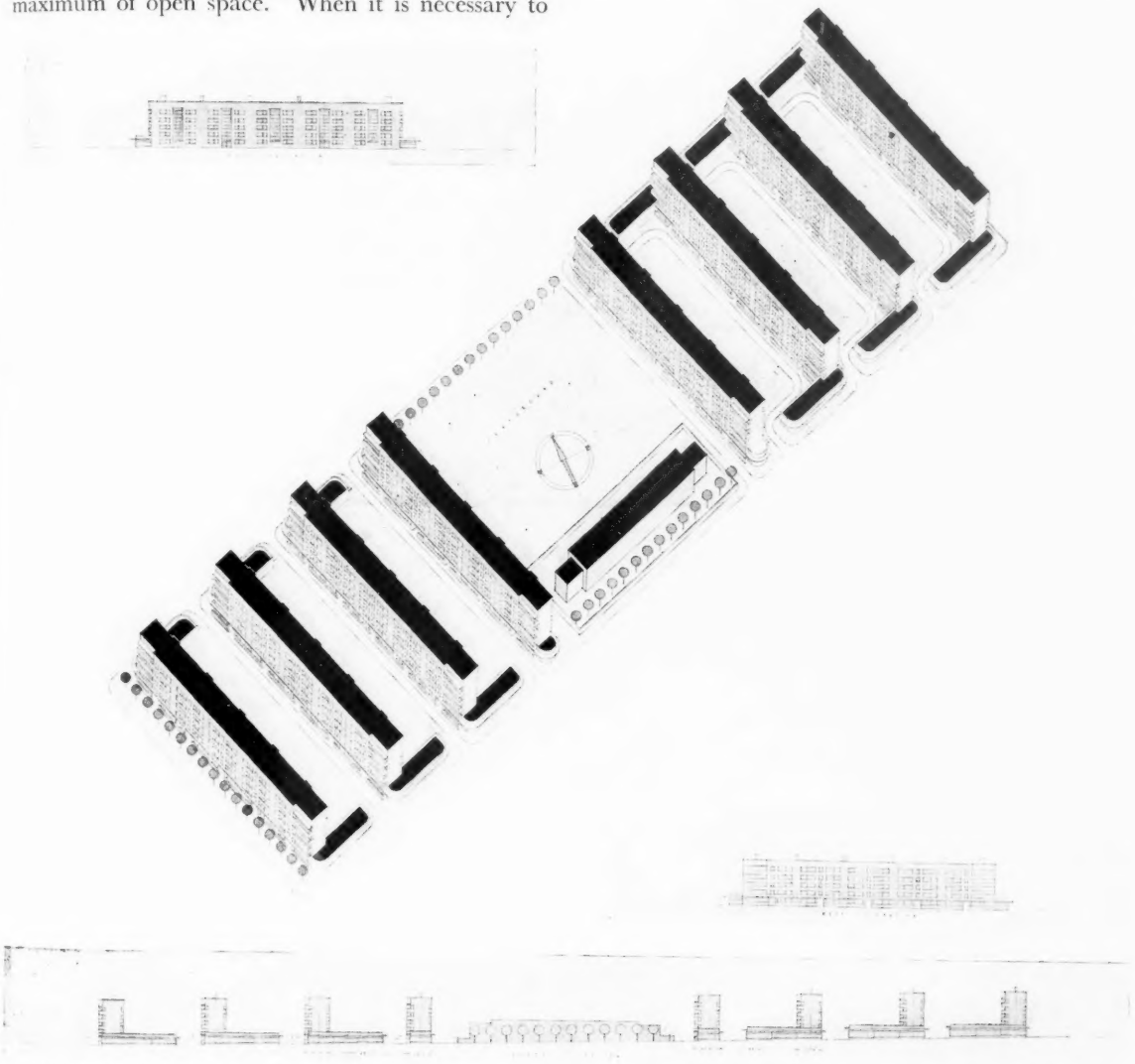
The old controversy of the cottage versus the flat may be raised again, but in the circumstances I have just described it is my unwavering conviction that the building of flats in the central areas of our large towns and cities is essential to the solution of the problem, despite all that has been said and written against them. The benefits of the single-family cottage are generally admitted. The garden city developments at Letchworth and Welwyn, both with their easily accessible rural belts, invoke the admiration of all who visit them, but is it less possible to raise an A1 community in a properly planned township of flats than in a garden city or suburb? Is there any doubt that the rising generation in the great continental cities of Europe will not be as fit physically and morally as the children of Wythenshawe and Dagenham and Norris Green? It has been suggested that in Germany the single-family house has replaced the flat in recent development schemes. German authorities themselves indicate that the change is due to economic reasons rather than to a change in policy.

For the past ten years it has been my privilege to occupy the position of Director of Housing of the City of Liverpool, where for over half a century it has been the policy to rehouse a large proportion of the tenants displaced by slum clearance operations on the site of their previous dwellings. At the present time the housing estate comprises 25,688 single-family cottages on the outskirts of the city, and 6,735 flats in the central areas. The present building programme contemplates the erection of a further 5,000 cottages and 10,692 flats, and this will be greatly increased by reason of the added housing responsibility placed upon the authority under the new Housing Act. I propose to show in a few moments examples of both cottages and flats, and also to give some details of a large redevelopment scheme. As this scheme will involve the erection of over 2,000 flats it may be of interest if I make brief reference to some of the general principles which are applied in the lay-out and design of these buildings.

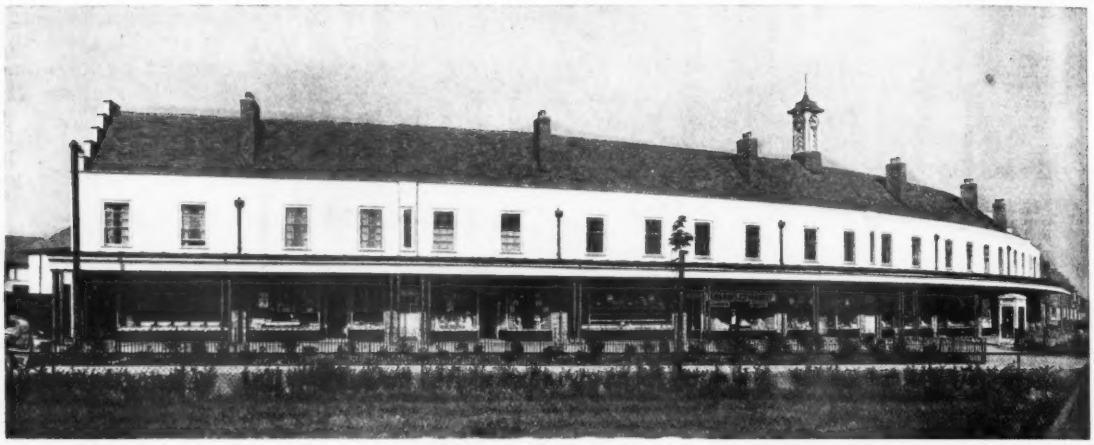
Site Planning

Shape and contours must naturally influence the lay-out of any site, but the best result is admittedly obtained by planning blocks in parallel running north and south so that the flats have aspects to the east and west. Enclosed playgrounds are avoided and the spaces set apart as gardens and for recreational purposes are concentrated, thus providing the maximum of open space. When it is necessary to erect an isolated block of flats on a small site the block is planned as a unit of an ultimate development embracing the area bounded by the adjacent traffic roads. A minimum angle of light of 30 degrees is allowed between blocks.

It is of interest to note how, with the same density of development of 60 families to the acre, the



City of Liverpool Housing: Beaumont Street scheme. Total area, 11.3 acres: Area for flats, 8.5 acres: Area for school, 9 acres; Area for playground, 1.87 acres: No. of flats, 400: No. of shops, 22.



Finch House Estate, Shopping Centre

percentage of the site built upon decreases with the higher building. In a scheme of flats of normal accommodation five storeys in height, 76 per cent. of the site is unbuilt upon. This increases to 88 per cent. in the case of ten storeys, and to 92 per cent. in the case of fifteen storeys, whilst the distances between the blocks arranged in parallel would be 90, 210 and 330 feet respectively. These figures are given not with the suggestion that fifteen-storey flats will be erected but to show one advantage of building upwards.

St. Andrew's Gardens. View through archway

Number of Floors

The number of floors in any block is dependent upon the provision or otherwise of lifts. Without this means of vertical transport three floors are the ideal and five floors the limit. Above that height the provision of a lift is essential, and it may yet be necessary, in exceptional cases, to build to ten storeys.

Construction

The normal construction is brick walls with reinforced concrete floors and supporting beams and columns. Alternative methods of construction will be considered in the event of any shortage in materials or of an increase in the number of floors over the five usually erected. Windows are of steel or wood or a combination of steel and wood. Floors of asphalt or wood except in sculleries, bathrooms and entrance lobbies, where quarry tiles are laid. Doors in the more recent schemes are flush-panelled and hung to steel frames. Skirtings are of tiles or cement and picture rails are omitted. Roofs are pitched or partly flat and pitched and constructed of wood, or wood and steel, and covered with felt and tiles. The flat roofs are covered with Ruberoid laid on insulating board and steel decking. Where parapets are constructed the rainwater is taken to the back of the buildings. Self-contained

flats are erected on each floor, but the possibility of constructing a series of maisonnettes may have to be considered if buildings of more than five storeys are erected in order to reduce the number of stopping places for lifts.

Method of Access

Both enclosed staircases serving two flats on each floor, and access balconies served by open staircases, are adopted. The latter method has many advantages and is used in most instances.

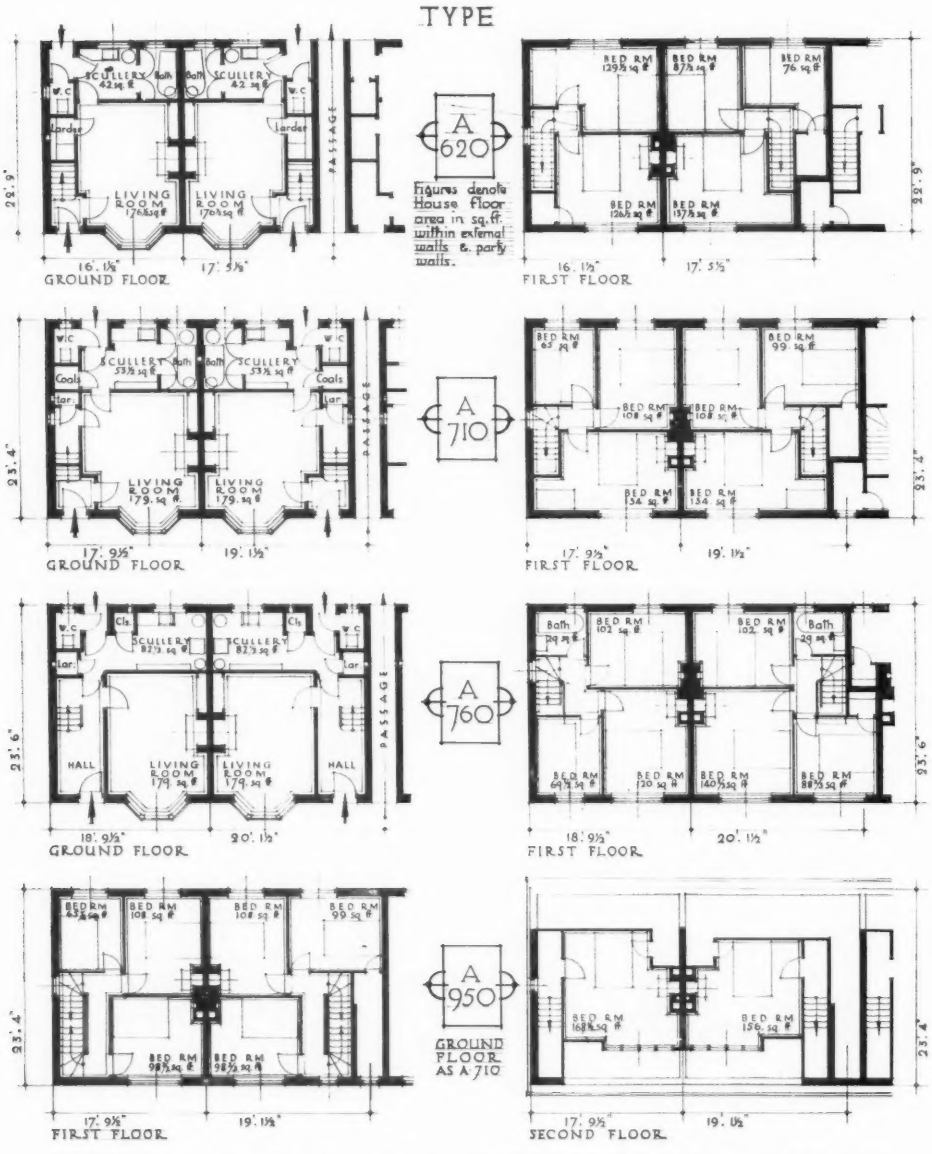
Planning and Equipment

The flats vary in size from the single bed-living room type to those with four bedrooms, and the following percentages of the various types are usual : Bed-living room type, 5 per cent. ; one-bedroom, 20 per cent. ; two-bedroom, 30 per cent. ; three-bedroom, 35 per cent. ; and four-bedroom, 10 per cent. Each flat is provided with a bathroom, and hot water is supplied from the back boiler in the living room. This to some extent dictates the planning, it being desirable to group the scullery, bathroom and living room together in order to effect economy in plumbing. In only very few instances are bedrooms entered from the living room. Private balconies from the living rooms are now general and are so planned that they do not obscure light from the rooms below. A gas copper is fixed in the small kitchenette, and a gas point provided for a boiling ring. Electric light is used for illumination and a limited number of points are provided for irons, cleaners, etc.

Redevelopment Scheme

I will deal now very briefly with a redevelopment scheme—one of three under consideration—which, I believe, was the first to be submitted to the Minister of Health under Section 13 of the Act of this year. It is an area of about 58 acres. In the eighteenth century the residential district of the merchants of Liverpool it is to-day in the heart of the city and almost entirely populated by the lower paid wage-earners employed in the surrounding business areas. Shops front the main streets which form the boundaries of the district, and a number of houses have been converted for commercial purposes. The schools are congested and their extension is urgently required. Most of the houses are insanitary and overcrowded, and those erected during the last half century are at very high density.

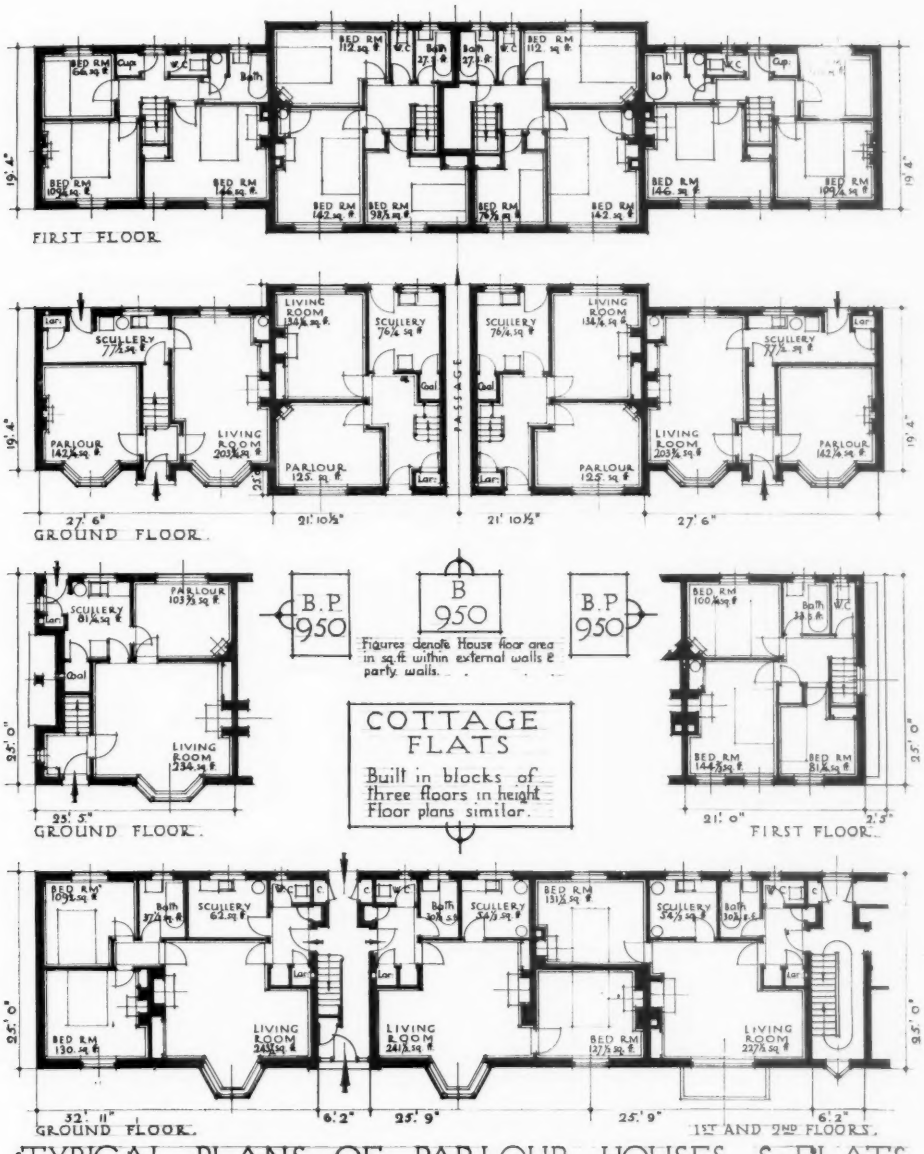
Finch House Estate. Non-Parlour Houses



TYPICAL PLANS OF NON-PARLOUR HOUSES

CITY OF LIVERPOOL HOUSING

L. H. KEAY, F.R.I.B.A. DIRECTOR OF HOUSING



TYPICAL PLANS OF PARLOUR HOUSES & FLATS

CITY OF LIVERPOOL. HOUSING

10 5 0 10 20 30 40
SCALE OF FEET

L. H. KEAY, F.R.I.B.A. DIRECTOR OF HOUSING

Dovecote Estate, Grovehurst Avenue. Three and Four Bedroomed Non-Parlour Houses

The scheme is being prepared for the redevelopment of the whole area by the erection of flats to accommodate the entire population at present housed on the area. Nearly 1½ miles of streets will be closed, with a resultant annual saving of over £600, which in 40 years will equal the local authority's contribution towards the rehousing of no fewer than 160 families. Provision will be made for a tree-lined boulevard 120 feet in width which will ultimately connect Queensway—the Mersey Tunnel—and the East Lancashire Road. An area of over 2 acres will be provided for recreational purposes. A new school, boys' and girls' clubs, clinics, meals centres and other amenity buildings will flank this playground. It is hoped that, as well as being used in connection with the new school, it will be available for organised recreation of the young people in the district, and perhaps floodlit at night for the physical training of men—a valuable competitor to the dog track.

New business premises will be erected to replace the unsatisfactory converted buildings at present in use, and thus provide healthier workshops for some of the 10,000 persons who will reside in the replanned area.

I have little doubt that this redevelopment, with the flats spaced between 100 and 200 feet apart and the intervening space laid out as gardens, is the only satisfactory method of dealing with a difficult problem.

Slides

The slides will depict examples of housing work in the City of Liverpool, and comprise :—

(1) Various types of cottages on the housing estates.

(2) Flats erected in connection with slum clearance schemes.

(3) Such details as are available of two redevelopment schemes, including that of 58 acres and known as the Central Rehousing Area.

You are familiar with the methods adopted by other local authorities in this country, and in the great cities abroad, and, making your own comparisons, can criticise the work for which I accept responsibility.

I have previously mentioned the reference to myself as "a local authority man." Whatever that may mean I hope that it will not be thought that I do not fully appreciate the efficiently designed and well-managed schemes of the various public

utility societies and housing associations, so much of which is evident in London, or what has been done by great commercial undertakings, of which the developments at Bournville and Port Sunlight are classic examples. In the task before us I am confident that a greater measure of success will be attained if both voluntary associations and local authorities work together in the closest co-operation. For this reason I welcome those clauses in the new Housing Act which will facilitate this co-operation and assist towards the better management of our great housing undertakings. I also welcome the references in the memorandum recently issued from the Ministry of Health urging the necessity of skilful and sympathetic management, for without this the full benefit of the added amenities which we as architects can provide will be lost.

I conclude by suggesting some points for your further consideration :—

The necessary powers have now been provided giving the opportunity of dealing simultaneously with every phase of the housing problem. Foremost in importance are those powers by which redevelopment schemes can be carried out under the Housing Act, 1935. Dare we neglect to use them to their full extent?

In the work to be undertaken during the next ten or twenty years should we allow ourselves to be bound by traditional methods either in design or construction, or even in the methods of management, and where it is necessary for local authorities to develop large estates should we deprive a great work of its full social value by the enforced segregation of a single stratified section of the population?

Leaving the so-called controversies of the flat versus the cottage and traditional versus modern design to those ethereal experts at Langham Place, our anxiety should be to see that the architectural work which will be involved is carried out by those who owe allegiance to that body which has learned the benefits of rehousing by its removal to Portland Place. We must not be timid about the size of the schemes undertaken. Let us take up the call of "Save the countryside," and by great schemes of redevelopment effect economies in health and other services and establish in our great towns those conditions which we as architects know to be possible and which those engaged in social work know will make for the greater happiness of our people.

Finch House Estate. Non-Parlour Houses fronting square

Vote of Thanks

Sir EDGAR BONHAM-CARTER, K.C.M.G., C.I.E.: It gives me very great pleasure to have the privilege of moving a vote of thanks to Mr. Keay for his most interesting and valuable address. It is unnecessary for me, after what he has said and after the beautiful pictures which he has thrown on the screen, to stress the value of the work which he and the Corporation are doing at Liverpool; but I would remind you that, notwithstanding the very large numbers of houses which have been built during the last few years, there are very great numbers of people who are still living in overcrowded and insanitary conditions. The law now places on the local authority the duty of seeing that every family within its jurisdiction is properly housed. I think that that is the most important work with which the local authority now has to deal, and no greater benefit can be conferred on the nation than that which will result from the local authorities carrying out that duty fully and completely.

Every part of Mr. Keay's address was interesting, but to me the two most interesting parts were that in which he dealt with flats and that in which he dealt with the new powers of redevelopment. With regard to flats, the building of flats in England for the working classes is a comparatively recent innovation; I do not think that any local authority built flats for working-class families before the beginning of the present century, and there is still a great deal to learn about the building of flats as regards planning and construction, cost, convenience, amenity, beauty and materials. I am sure that all local authorities are very interested in what is being carried on by Mr. Keay and by the Liverpool Corporation; in this case they have indeed led the way.

As regards redevelopment, we must also congratulate Mr. Keay and the Liverpool Corporation on having been so early with their redevelopment scheme. The last Housing Act does provide wonderful possibilities for the improvement of the old parts of towns. No doubt the execution of those powers will present enormous difficulties; it will probably be, unless it is most carefully and skilfully carried out, extremely expensive; and here, again, I am sure that all local authorities and everyone interested in housing will watch the work of Mr. Keay and the Liverpool Corporation with the greatest interest and with a desire to learn everything they can.

Mr. Keay rather dragged his coat with regard to the question of cottages and flats. I am not going to attempt to trample on the tail of his coat, because I do not believe there is any real opposition between them. I am one of those who believe that, where it is practicable, the cottage provides the most satisfactory form of housing for the working-class man who has a family; on the other hand, no one who has any sense would suggest that it is possible to provide housing accommodation for the working classes in the centre of towns or where land is costly except in flats. There is really, therefore, no opposition; but I do feel that the proposals of the local authorities to concentrate their attention on building flats in the centres of towns, with the assistance of large subsidies, flats which will be let at low rents, and probably at lower rents than those for which houses out in the country can be provided, present certain dangers. There is a danger that that policy may attract people to the towns, and what I am most alarmed at at present is that London and other big towns are growing greater and greater every day, and the population of this country is becoming more and more urbanised. I believe that the most important thing we have to consider, taking a broad view of this housing question, is how we can prevent the population from becoming more and more urbanised, how we can keep the population of England more in touch with nature, more in touch with the country.

What I have said is, I think, in no way contrary to anything that Mr. Keay is doing. I feel that we are under a very great debt of gratitude to him for his paper. I suppose there is no one here who has not learned something from it, and everyone, I am sure, has been most interested in it. I should like, therefore, to propose a vote of thanks to him for his paper and for the fine pictures which he has shown us.

The PRESIDENT then called on Alderman Ewart G. Culpin [*F.*], Vice-Chairman of the London County Council, to second the vote of thanks.

Alderman EWART G. CULPIN [*F.*]: I am rather relieved to know in which capacity I am to second this vote of thanks. I did not know whether it was because it was thirty years ago last week that I first entered the service of the Garden Cities Association and started my work as a housing reformer; whether it was because I had for a number of years been associated with the architectural side of a good many housing schemes, or whether it was as a representative of a great municipality; but in each of those capacities I am pleased to second this vote of thanks.

All of us here will join in congratulating Mr. Keay on the boldness of his work—boldness in design and boldness in execution—and on his energy in getting the work done.

Sir Edgar Bonham-Carter has alluded to the perennial discussion of flat *versus* cottage. I think there is a corollary to that: I would suggest that Mr. Keay has not made a sufficient distinction between the garden suburb and the garden city. The garden suburb may be a palliative of to-day's conditions, but I agree with what Sir Edgar Bonham-Carter has said,

and I think we shall never find a solution of the housing problem until we get right back to the original thesis propounded by Ebenezer Howard many years ago—the garden city. That, to my mind, is the real solution of the housing problem. I am quite aware that present-day necessities make the immediate application of the garden city principle somewhat difficult. I know that there are many things against it. We are told we must build where people can be near to their work, but I am not prepared to accept the suggestion that their work must necessarily stay where it is, and that the factories must always exist in the crowded portions of our urban agglomerations ; and, because I believe that the garden city principle is right, I say that when a thing is right it must be right, and you cannot make it wrong, and I am going to stand by my old ideals.

Although I now have to deal a great deal with tenement buildings and with large blocks of dwellings, I am still afraid that future generations will be apt to condemn us for bringing about the almost complete divorce of man and nature which is involved in the erection of huge numbers of tenement dwellings in the midst of urban populations. I believe that very strongly, and I believe that in the garden city ideal of the removal of both the work and the workers out into the country is to be found the real solution of the housing problem.

Mr. Keay has referred to small isolated sites, and, of course, we know that they are always difficult to deal with. He has shown us some wonderful schemes, and I congratulate him most heartily, as I am sure every architect present does, upon the work which he has done and upon the beauty of the schemes that he has shown us, which afford so great a contrast to those of the speculative builders to whom he has referred. We all wish him success.

We in London have an even bigger problem to deal with than exists in Liverpool. We cannot build upon the areas we clear. The number of people inhabiting some of the clearance sites in London is three and four hundred to the acre and sometimes more, and it is impossible to rehouse them decently upon the old sites. In order to carry out a big clearance scheme, we have to find somewhere where we can start, and we are bold enough to say that we are going to start somewhere where we have got a clear site.

I am not, of course, speaking for the London County Council when I say this, but as a private individual I hope that the clearance schemes of London in the near future will not be confined to areas reckoned in acres or tens of acres ; I hope that we may see schemes of clearance and redevelopment which will be in square miles. No one who has studied seriously the area to the east of the Bank of England, with its square miles of hopelessness, can fail to see that something has to be attempted there that the world has never yet seen, a clearance and redevelopment scheme which will cover miles of land, involve many thousands of houses and cost millions of pounds of money. The financial aspect of it will have to be worked out, of course, but I envisage in the future a big scheme of redevelopment for the East End of London where there will be decently housed in proper surroundings the people who at the present time are living under those terrible conditions which have become almost too familiar to us.

In those big schemes of redevelopment we may be able to provide not merely playgrounds between the houses, but something bigger : places which the children who live in those houses will be able to reach without taking buses or trams or dangerous walks along busy roads to reach ; places in the actual area of redevelopment which will provide not only playgrounds for the children and rest-grounds for the old people, but here and there bigger open spaces which will be open to everybody, and which will be really healthy lungs for all the people of the redeveloped area.

That is a big scheme, and it may be something that has not yet been worked out, but there is the possibility of the redevelopment of the whole of that derelict and obsolescent part of the East End of London, and I hope and believe with some confidence that before long it may be possible to evolve some scheme for that development which may in some degree rival even the wonderful work which Mr. Keay is doing in the City of Liverpool.

Mr. Keay has shown us schemes of various kinds, and he has shown us varied types of architecture and different methods of construction. I hope that all of us who are concerned with housing schemes from the architectural point of view, and who are advising local authorities on redevelopment under the various Acts, will pay a good deal of attention to what he has shown us in regard to methods of construction. All who have submitted schemes to local authorities know how difficult it is to get anything new adopted by them. No local authority seems prepared to be the first to make an experiment. I know that Professor Adshead will agree to that, because he has had some trouble with local authorities, as many of us have had. I believe, however, that we have to adopt modern methods, and I do not think it would be a bad thing if those of us who are engaged on housing schemes and who were brought up in our work of housing perhaps a quarter of a century ago were to turn over some of the designs and some of the ideas of the younger members of our staffs and let them have a go at it. I believe there are many fresh ideas which must be brought to the front and which have not had sufficient prominence up to now. There are methods of construction which are much more suited to the rehousing of the slum population than those which are prevalent to-day, and I believe that some of the younger people

will have a better chance of dealing with the matter than those of us who, perhaps, have served our time.

As I have said, local authorities are as a rule afraid to experiment, and one of the greatest compliments that we can pay to Mr. Keay to-day is to acknowledge that he has been able to persuade his authority to go in for bold and daring schemes. In seconding this vote of thanks with the greatest heartiness, I venture to express the hope that Mr. Keay will long retain his youthful vigour for experiment, and will go on and persuade his authority to do still younger things in the housing of their population.

Discussion

Mr. R. GOULBOURN LOVELL [*A.*] : I have had an opportunity of seeing some of the work that has been done in Liverpool when it was visited by the members of the International Conference on Housing, and I should like to supplement the pictures which Mr. Keay has shown us by saying that one thing that struck us all, and particularly the visitors from the Continent, was the wonderful colour effect of these buildings. I well remember that when we approached St. Andrew's Buildings there was almost a dazzling effect from the most brilliant colours—magenta, orange, green, crimson, and so on—flashing from the windows. When I tackled Mr. Keay about it afterwards and complimented him on the very ingenious way in which he had brought sparkle into somewhat heavy buildings, he said " I had nothing to do with it ; it was brought about by accident." How it was brought about by accident I cannot tell you, but we were all struck by the brilliancy with which these buildings were decorated.

Of course, Mr. Keay is a modest man ; he comes from my own town, so that we can understand his modesty ; but I am glad to testify that here, at last, is a very able architect who comes from Eastbourne !

Replying to a question, Mr. KEAY said that lifts were provided where a building exceeded five storeys in height.

Mr. A. T. PIKE (Secretary, Garden Cities and Town Planning Association) : I should like to draw one of those comparisons which are so popular in these days between what this country is doing and what is being done in a number of Continental cities. It is very common for those who spend a day or two in Vienna and see the schemes there to return home as complete housing experts and at once to say " Why does not this country do what that city and other cities are doing ? " I have had the privilege on many occasions, and as recently as last week, with my Chairman, Mr. Cecil Harmsworth, of being taken round Liverpool by Mr. Keay, and I was impressed then, as I have been on other occasions with Mr. Keay, by the tremendous amount of work which is being done in Liverpool. So far as my travels are concerned, and I have visited most countries with the exception of Russia, I have found no other city which has really tackled its housing problem in such a splendid way.

When we make comparisons, I think we have to bring certain common factors down to a comparable point. We have to take into account two factors which are of outstanding importance, and which it is easy to forget ; one is tradition and the other is finance. When we wipe out all factors which are incomparable we are left with two, which turn the scale in favour of what this country is doing as compared with other countries.

Mr. Keay's great achievement in Liverpool is to break through the tradition of cottages as against flats. It is very easy for Berlin or Vienna to build most spectacular flats, which in no sense am I deprecating ; I have a certain admiration for them. But when we hear people say that London and Liverpool and Manchester ought to do what Vienna and Berlin are doing, we must take into account that in Liverpool Mr. Keay has had to break through the tradition of cottage life and cottage development in order to get his flats ; and that is a factor of tremendous importance. When we see on the screen what has been achieved in Liverpool, we have to realise that it has meant the breaking down of a tradition centuries old.

The other factor to which very little attention is given is that of finance. We cannot compare the financial basis of housing in Berlin, Vienna or even Paris with the financial basis on which we carry out our housing schemes in this country ; and there again Mr. Keay has had to have regard to the traditional financial structure of housing in this country. In spite of those two predominating factors he has achieved what we have seen on the screen to-night, and it is those two all-important considerations which, I suggest, rank Liverpool to-day as the leading city in Europe in the matter of slum clearance and rehousing. It is a very great privilege to be able to pay that tribute to this extraordinarily valuable work which Mr. Keay is doing in his city.

Mr. A. B. KNAPP-FISHER [*F.*] : I should like, if I may, to ask one question. Why cannot the " baby balconies " be open balconies, so that the light and air and sunshine can get on to and around the babies in question, instead of what many of the medical profession call " coffin balconies " ?

Mr. KEAY : I would rather discuss that over a cup of coffee !

Mr. S. POINTON TAYLOR [*F.*] : I should like to try to focus what always seems to me to be the point of this question about cottages and flats. It is surely not a question of guesswork or of what we may think about this and that and the other ; it seems to me it is a definite question of precision. I am sure that Mr. Keay and the Corporation of the City of Liverpool have definitely weighed up this question of flats and cottages and have come to their decision rightly ; indeed, the very fact that the Minister of Health has approved their proposals indicates at once that their decision is correct !

It is indeed a question of precision and not a question of opinion. I am sure that the authorities in Liverpool have weighed the matter up and have considered the number of people who must be rehoused in the city itself. They know quite well the number of factories which exist there, and they know quite well the time and distance measurements involved. Again, they know the number of people who are employed in Messrs. Lewis's and in all the other businesses of the town. They know the number of people who cannot afford to go two or three miles out because of the difficulties

of time. They have therefore come to a decision on the principle of flats and cottages. I believe I am right in saying that Mr. Keay has indicated to us that they have built 25,000 cottages and some 6,000 flats, and that in their future proposals those proportions will be reversed, and there will be rather more flats than cottages.

These are questions of precision. There are other large towns in this country, with square-headed councillors, which have given the matter similar consideration, and they have come to opposite conclusions, for precisely similar reasons; there are towns which do not require so many people in the centre and which can arrange to house them away from the centre.

Having dealt with the question of how the matter should be decided on the facts of the case at issue, what are all of us aiming at? What is Mr. Keay aiming at? Quite clearly, from what he has told us to-night, he is aiming at the same thing as Sir Edgar Bonham-Carter and Alderman Culpin: garden cities. Is there any reason why all our cities should not be garden cities? It seems to me that we are aiming at the best that we can do, both inside our cities and outside our cities; and Mr. Keay is, within the limitations of Liverpool, difficult though they may be at the moment, aiming to produce that effect of a garden city within the city which most of us find so much easier to do outside the city.

I think, therefore, that we can be highly delighted that Liverpool has a Keay to handle the technical side of these problems. All that we can hope, especially as Mr. Pike has said that this is a question of finance, is that something will occur whereby Liverpool may perhaps be enabled to put more of its people outside the city, in healthier surroundings than ever Mr. Keay will be able to arrange within the city even under his best schemes. That is a question which only time will answer. There will be variations all the time: no one decision can be given at any moment, and I am quite sure that Liverpool and other cities are dealing with this question in the best way to meet their own particular conditions.

Mr. H. W. S. FRANCIS: As an ex-Director of Housing at the Ministry of Health I feel it to be wrong that I should accept your hospitality and that I should have the pleasure of hearing Mr. Keay's lecture without saying explicitly that I have had advice during the past few years from many men with varied experience with local authorities and others, and I have not found a more pleasant, a more trustworthy and a more consistent adviser than Mr. Keay. I have no doubt whatever that Mr. Keay will continue with my successor the position of father-in-law of the Housing Department which he has held in effect for some years, and I am quite sure that, if their connections were weakened, the loss would not be Mr. Keay's; the loss would be that of the Ministry of Health.

Asked what he did with the factories and workshops which he found mixed up with the areas he cleared, Mr. KEAY said they were to be rebuilt at one side of the big redevelopment scheme.

Mr. F. LEONARD JACKSON: I do not rise in order to contribute to the discussion, but I came here in the hope of learning something, and I want to learn a little more. I think everyone who has had practical experience of building tenement schemes, and who has made some effort to provide nice grass plots and lawns, is confronted with the serious difficulty that if those lawns are protected only by low walls or pleasant little railings they very soon cease to be grass plots at all, even with the most energetic of caretakers. If, on the other hand, the grass plots are surrounded by railings sufficiently high to protect them, they cease to look like grass plots also. I should be interested to know what method Mr. Keay has found most effective in dealing with that difficulty. I should also like to know what methods he finds most effective for dealing with the noise problem, which seems to be the greatest objection to most of the flats which have so far been built in this country for the accommodation of the working classes.

Mr. F. P. KINDELL (Borough Engineer, Barnes): As one of your visitors, I should like to add my mede of thanks to Mr. Keay for his admirable lecture. I was very interested to hear the remarks of Sir Edgar Bonham-Carter and Alderman Culpin on the subject of garden cities, and particularly Alderman Culpin's suggestion that industry should be taken to the garden cities. I mention this because, as adviser to a local authority, I had occasion to be sent to a garden city recently—I will not mention names, but it is one of which you have heard this evening—where a factory wished to move back to London. We asked them why they desired to leave the garden city, and the reply was: "In modern industry we do not want to employ the older type of worker; we do not want to have to un-teach them all they have learned. We want to take boys and girls straight from school and teach them our modern methods, and that cannot be done in a garden city because there are not sufficient young people to employ."

Professor S. D. ADSHEAD [*F.*]: I rather thought that this discussion would veer on to the old controversy of cottage and flat. I do not wish to enlarge on that discussion, but from my own experience and that of my partner, Mr. Ramsey, I think I may say that to build cottages in the centre of towns is both uneconomic and in every way unsatisfactory. My experience is this, that when I was called in about the year 1910 by the Prince of Wales's secretary to replan Kennington my first scheme was for five-storey flats, but at that time, I can assure you, it was wiped out about as quickly as it was produced, and, following the advice of those who were in a higher position and had greater experience than myself, we began with cottages. The estate was developed during a period of nearly twenty years, and it finished up with five-storey tenements.

The five-storey tenement is considered to be the most satisfactory solution of the problem of housing the greatest number on the most expensive land, but I have gone one better than Alderman Culpin hinted at and have made a drastic attempt to produce a ten-storey building; but I was again nonplussed and had to revert to five storeys. I make no kind of condemnation of those who desired the five storeys; it was possibly the best solution, all things considered; but I should like to say that I appreciate Mr. Keay's boldness in suggesting ten-storey buildings on the site which he showed us. The reason for the ten-storey buildings he advocated is the larger amount of sunlight and open space which can be provided.

There is one other point to which Mr. Keay drew attention which I should like to emphasise. He told us that in an area where he cleared about 1,300 cottages he was able to provide 2,000 tenements. That shows us that we can have more people on the site, a larger open space and altogether

a more satisfactory scheme by having tenements rather than cottages.

I would conclude by saying how much I appreciate the splendid view which Mr. Culpin has given us of the future of East London.

The PRESIDENT then put the vote of thanks, which was carried unanimously with acclamation.

Mr. L. H. KEAY, in reply, said : I was warned in a letter from the Secretary to be very careful about how much time I occupied, and I will make my reply very brief. First of all, I should like to say that there is no controversy between the cottage and the flat ; they both have their place. All we are trying to do, those of us who have to build flats, is to bring into the flat some of those amenities which you consider essential in your garden suburbs and garden cities outside ; what the Ministry calls " modern standards."

I am a bit of a horseman, and I am not going to be led on to the Marshes to-night ! I would, however, say this : remember that as you build upwards so you save your space. There is not a bit of open space that we have in Liverpool at the present moment on which we are going to build if we can avoid it ; we are going to add to it. With a five-storey building you leave 76 per cent. of the area unbuilt-on ; with ten storeys you leave 88 per cent. If you put up fifteen-storey buildings—I am not going to recommend that you should—you leave 90 per cent. of the area unbuilt-on. Do not be too keen, therefore, on building on the open spaces that you have got.

Reference has been made to my keenness and youth. Keenness, of course, comes to all those south-countrymen who go to the north to work. Youth does not come ; it simply seems to fly away ; but I should like to pay a tribute to the younger members of my staff. I have in my office every year for a period of six months four or six of the chosen students from the Liverpool School of Architecture. The only trouble is that when you have an air balloon full of gas you must be careful to hold on to the string ! But their modern outlook is very helpful to me, and perhaps it is because I associate with youth that apparently I can claim—I did not know it before !—to be youthful. I suppose that a man is known by the company he keeps.

Mr. Lovell referred to the colour scheme, for which he thought I was responsible, on the outside of some of our flats. There is a catch in all this, if you only knew. He did not go inside. We now paint the inside of our flats with such atrocious colours that curtains of ordinary colour do not go with it ; even the most elementary person realises that, and so puts a plain whole-coloured curtain up outside, and we get the effect that we want !

Mr. Francis made some very kind remarks about me. It has been my pleasure to work with Mr. Francis since he has occupied the position which I am sorry he is leaving at the Ministry of Health. I remember once he said " We have played very well together," and we have. We have been able to work extraordinarily well together and in the closest co-operation. One can always feel, however, with the tradition of the great Civil Service and, perhaps, even of the lesser municipal service, that when Mr. Francis goes on somewhere higher and I go somewhere else it still continues. It is one of those things in England of which we have to be very proud ; it goes on whoever occupies those positions. But I shall regret his absence from the position of Director of Housing and Town Planning very much. It is softened by the fact that I know his successor, and I am quite sure that we shall work equally well together.

I will not take up your time any longer, but I should like to tell you this, that it is a treat for a provincial man to come to London and to hear what you are going to do in London, that you are going to do what we are struggling to do away in the provinces. I shall go back to my office and to my staff feeling that I have your goodwill behind me. I shall convey what you have said to me to my staff, because without them I could not carry on at all. I am not going back to what you think is a depressed area ; I am going back to an area and to a city which is full of determination, despite what Southampton may do in competition with docks and what London may hope to do, and I trust will do, in its slum areas.

Description of Slides

Mr. Keay described his slides in detail as they were shown. Although it has not been possible to reproduce all the photographs, without which some of the remarks are necessarily obscure, we have thought it desirable to print Mr. Keay's running commentary verbatim.—ED.

I will begin by showing you illustrations of the smallest type of accommodation provided, flats and cottage homes for aged persons on the Dovecot Estate. The accommodation in the cottage flats built round the square which you see in this picture is either a bed-living room with a small kitchenette and a bathroom, with hot and cold water laid on, let at 4s. a week, or the same type with a small bedroom leading from the bed-living room, which is let at 5s. 9d. a week. I always feel that this is one of the essential works of a local authority, and one which I would regret to see dropped more than any other of its housing activities. Only the day before I left the office I was handed a letter from the National Council of Women of Great Britain. They are asking the Liverpool Corporation to consider that for the greater contentment of old people provision of improved accommodation should be made for the aged persons in their district. Such buildings cannot be put up without a heavy subsidy from the local authority. I am glad to see from the letter which was handed to me that a copy of that resolution is also being

sent to the Government, and I shall hold out my hand in anticipation of receiving something also from that source!

My next slide shows a similar group of buildings (*Huyton Farm Estate*), and the rather ragged playground which is shown in the front, occupying about an acre of land, is a little interesting if I may tell you a story about it. It was originally set apart for a church site, but the churches found suitable accommodation elsewhere. Then it became, as all open spaces do, a playground for children. There was considerable objection from the old people that the children were playing there, and I decided to recommend to the committee that it should be divided equally, copying the wisdom of Solomon, and giving half to the old people as a rest-ground and half to the children as a playground. I remember receiving a letter in the office which described me in the terms of a not particularly favoured gentleman in European politics at the present time. The fortunate thing was that, although I was threatened by this person with action by members of the local authority, I realised that she was outside the City of Liverpool, whereas she did not, and the outside people had no influence on me at all. The story I want to tell you is this, and it deals with something to which I am going to refer later on. The area shown in the picture was divided up, and half was given for a playground for the children and fitted up with gymnastic apparatus. Last summer I happened to be passing that district and I went along to see how the children were getting on, and I saw the old lady, who had been very loud in her objection to the children being there at all, helping a child in a queue waiting to get on to what we call an "ocean wave." I said: "Are you quite happy?" and she said "I am very sorry that I ever objected to this." That struck me as a real reason why you should mix up the old people with the young and not segregate either the one or the other.

My next illustration shows the next type of house (*Finch House Estate*), still a small type of only 620 ft. superficial area, and provided with two bedrooms. You will observe the care we take in the North to preserve such trees as we have; we are not so lucky as you are in the South.

In the next illustration you see the same type of house, built almost up against the edge of the pavement. That was done quite deliberately, and is not altogether unsatisfactory.

We then come to a slightly larger type of house with three bedrooms and a superficial floor area of 710 ft., with a bathroom downstairs. That is very much advocated by some people and is liked by a considerable number of tenants but not by others. It lets for the modest sum of 9s. 11d. a week, including rates. (*Dovecot and Huyton Farm Estates.*)

My next slide is a photograph of a group of similar houses, possibly a little more modern in design.

We then come to a slightly better house, still with three bedrooms, but with a bathroom upstairs and having a floor area of 760 ft. It is the largest type of building that the local authority was permitted to build in the days when the Ministry informed us that we must build for those whose needs were greatest. That type of house lets at the modest figure of 10s. 1d. a week, including rates. (*Finch House Estate.*)

You will notice that the brickwork has been colour-washed. There is great difficulty in getting an adequate supply of good facing bricks, and the application of a little paint on a very common brick makes, I think, a very effective frontage.

I pass now to the largest type of non-parlour house, a house with four bedrooms and a superficial floor area of 960 ft., letting at a not very much increased rent, because the bigger the family the smaller the amount available for rent. The rent is in fact 10s. 8d. a week. (*Dovecot and Huyton Farm Estates.*)

We now move on to the bigger type, the parlour house with three bedrooms letting at 16s. 4d. a week. (*Springwood and Dovecot Estates*). Many of them are planned round squares. The square is often deliberate only to this extent, that by building round a square you avoid building on what in agricultural days was an old pond.

My next slide shows the same type of house, colour-washed. I frankly admit that the three small windows at the top, which give a rather imposing height to the centre of the building, only light the water tanks.

I have shown you those photographs of the work on the outside of the city, work which you may perhaps think architecturally satisfactory, but which I feel socially is perhaps quite wrong. I am quite terrified myself at the enormous estates which local authorities are building—there is one in the city of Liverpool a mile square with nearly 8,000 houses—entirely occupied by the same sort of people. I know that it is difficult to encourage local authorities in what I would call municipal capitalism, to use a political word, but I do realise that there should be some bigger houses on these large estates. They will not be provided by private enterprise, because private enterprise does not like being associated with corporation enterprise. The very fact that I have ceased to use roughcast in Liverpool has apparently compelled the speculative builder to roughcast all his houses. I understand that it is no longer possible to sell a house built and faced with rustic bricks because it may be mistaken for a corporation house.

I should like to show you one or two slides of what I think are important things on the housing estates, and which I readily admit the Ministry of Health have always helped us to build. These are the little civic centres, and I show you first the first shopping centre which was built in Liverpool on the Norris Green Estate. It was rather a difficult thing to get the committee to agree to; they were terrified that they might lose a lot of money, but on that particular estate they make my own salary twice over every year.

My next slide shows a similar development (*Fazakerley Estate*), but this time with a public hall and public library over the shops. We experimented in the first case with commercial enterprise only, shops, but we realised that the upper floor of the shops was often not used and that we could get almost as much rent from the shop by letting it as a lock-up shop, with the result that we got the public library and the public hall for the tenants on the estate at almost cost price.

My next slide shows a larger development of the same kind (*Dovecot Estate*). You will notice that in all these shopping centres we bring out a verandah to protect the people who are anxious to do their shopping on Friday nights with their husbands' money. In a week such as you have had in London last week, and as we have had for many weeks in the North, you can at least approach the shops dry-shod under these verandahs.

I should also like to show you one of the most recent of our shopping centres (*Finch House Estate*), and there again

we have had to rely on colouring the rather ordinary common bricks.

I now want to show you a few slides in connection with slum clearance schemes. I should like to say straight away that I am too old to think that I know everything about this difficult problem, and I hope I have not yet reached that age which they call "mellowing," where one becomes too dogmatic. I am still trying to learn the best way of developing or re-developing these central areas. In this particular scheme (*Queen Anne St.*) the buildings run almost entirely north and south, with the exception that the north end is closed in each case. That is interesting, because it is an area of over eight acres. As the Minister of Transport has coined the word "de-restricted," I should like to coin another word and say that this has been "de-roaded." There are no roads at all. The wide space which you see in the centre was the main road, and the other part of the area was covered by small courts and narrow streets, but that itself will ultimately become a playground. You will notice that part of it is planted in the centre, and gymnastic apparatus is to be fixed in both the courtyards.

That is a thing on which I myself am extremely keen, and it has been seen by two Ministers of Health who have also expressed, I believe, the desire that it should continue. I am going to tell you a little story about that later on.

The next slide (*Hill St.*) shows how the main lines run north and south. It is extremely difficult for an architect —I know it is extremely difficult in the case of my own staff —to avoid preparing ground plans which resemble tessellated pavements, the old tiles with patterns on. There is a great temptation to do it, and I think there is something to be said for it in moderation, but what seems to me essential is this. Unless the main rooms of these flats front main roads, where there is some interest, they should have front gardens where people can see a little green grass and a few trees. In all these schemes at Liverpool which are now being planned the people can either see their neighbours going to do their shopping or can look out at green grass and a few trees.

I said that I would not dogmatise, but personally I believe, after a great deal of consideration, and after dismissing the idea that it is amusing to prepare a lay-out of curious shape, that the next slide shows the ideal lay-out for any ordinary rectangular site (*Upper Parliament St.*). The blocks run north and south: the main rooms face the west. The spaces between each of those blocks are sun-swept, and, in the north, wind-swept every day. By building the blocks close together —they are 90 ft. apart—you can reserve in the centre of an area such as that, comprising 400 flats, an area of no less than two acres available for a school and a school playground. The school may appear to be on the wrong side in this case, because it screens some of the playground from the sun, but that was deliberately done because the road at the top, at the north end, is one on which there is a considerable amount of traffic.

In case the backs of these flats should appear objectionable to the passing pedestrian, although I do not know why they should be, they are screened by introducing a long row of shops. It is an interesting point as to whether the breaks shown are permissible. From the business point of view they are not, and perhaps when that scheme is actually carried out the shops will be made continuous along the north side, and the lower buildings on the south side will be amenity buildings such as clubs, clinics, meal centres and milk distributing depots.

Having shown you what I consider the ideal, in the next slide I show what one is sometimes tempted to do on particular sites. Semi-circular buildings of the type shown are very attractive. I believe that what I show here is quite wrong in planning, and my consolation is that it has never been carried out.

In the next slide (*St. Andrew's Gardens*) the main blocks, the three on the south side, run due north and south, but there was a very big temptation here to close the circular end, because the buildings opposite are buildings which cannot remain, and eventually that must be opened to a main street. This scheme was completed this year, and was opened by the Minister of Health last June. I should like to show you several photographs of this, because they may be of interest. It is a departure from the ordinary, traditional design.

The first slide shows a model of the completed scheme so far as it has gone at the present time. The next shows a perspective of what I hope will ultimately be the scheme, increasing the number of flats from 316 at present to about 900 by taking in a great deal of old property on both sides which is all overcrowded. One of the drawbacks to this scheme is the fact that right through the centre runs the main line from Liverpool to London, and engine drivers seem to have a playful habit of drawing their engines up to one of the openings and then discharging as much smoke as they can in a very short space of time.

I have now some photographs to show you of the actual scheme itself. The first shows the first "baby balconies" in Liverpool. Some of you may have seen photographs of a scheme carried out in Birkenhead quite recently which has been illustrated in this month's issue of *Building*. Curiously enough, both this scheme and the scheme at Birkenhead are called "St. Andrew's Gardens." The current issue of *Design and Construction* contains a number of photographs of this particular scheme. My only consolation is that this was started nearly a year ago, and I was taught when I was quite young that imitation is the sincerest form of flattery.

The main road running down through the centre of that estate to the big semi-circular building at the end is shown in the next slide, and the following slide shows a view looking across the flat end of that semi-circular building. Another photograph shows the entrance to the courts, which is bridged over and connected up. Rightly or wrongly, I regard that connection of all these buildings as important. Another photograph shows one of the curious narrow arches which were made quite deliberately to allow a fire escape to go in.

You will notice the big electric light standard in the centre of the courtyard. By putting very powerful lights in the centre it was possible to eliminate all lighting of the balconies which run right round the inner courtyard. That represents a considerable saving. There are seats for the tenants to sit on, and on a summer evening it is very attractive to sit out there.

The next slide shows one of the enclosed playgrounds for the children at the flat end of that enclosed court. The playgrounds contain apparatus for children under fourteen years and, separately, apparatus for those over fourteen years of age. I regard all this as very essential. Among the apparatus is what we call an "ocean wave," which is guaranteed to cure many complaints from which people suffer in after-life. To my mind the provision of these things is, as I say, essential. I should like to tell you a story, which I almost hesitate to relate because I shall probably be hauled

over the coals for telling it. Someone told me the other day that the Ministry of Health had refused to allow one of these schemes to rank for financial assistance under a slum clearance scheme carried out under the Act. I did not believe it at first, but unfortunately it proved to be correct. The cost actually amounts, I believe, to .06d. per flat per annum.

The next slide shows one of the large open tower staircases. Liverpool, perhaps, differs from other towns in that it builds open staircases almost entirely, and open access balconies. That is peculiar, perhaps, to Liverpool, and I do not suggest that it should be adopted by other towns; but we have rather a curious cosmopolitan crowd of people to deal with.

Having, perhaps, frightened you with views of rather modern buildings, I now come back to more traditional work. The next photograph is interesting, if not in design at any rate because it represents the first 54 flats of a scheme which will eventually comprise nearly 1,900 flats on a replanned area. (*St. James's St.*)

To show that tradition is not everything, I illustrate now a rather more modern design for a scheme of 360 flats built quite close to the centre of the city. (*Myrtle St.*)

Coming back to tradition, the next slide shows a group of 72 flats, four storeys in height. (*Wavertree Gardens.*) There are separate flats on each floor, but those of you who have grappled with a four-storey building will realise that four storeys are very unsatisfactory; there is no middle to a four-storey building. By putting the top floor entirely in a Mansard roof you seem to get very much better proportions.

Next is part of a scheme of 180 flats which has just been completed. (*Fontenoy St.*) You will notice that the balconies are increasing as the designs become more recent.

The next slide illustrates a comparatively old scheme, completed two years ago, for 246 flats. It is particularly interesting because they are the cheapest flats which have been built in Liverpool since the war, the average cost being only £386 a flat. (*Speke Road Gardens*).

The next slide shows one of the small green courts upon which the buildings face. Unfortunately, the grass court has to be locked up during certain hours, and it is used only by the older people living in the two-storey flats shown at the side.

The next slide shows a view looking across the end of the big central courtyard, again showing the main buildings looking on to a grass plot.

I now want to show you one or two photographs of what I would call the central rehousing area. The first is an aerial photograph, and I think shows the hopeless folly of individual planning. If you study it closely, you can see how development has gone on bit by bit. I have studied it from the plans which the corporation possesses from 1835 onwards, and you can see the gradual spoliation of that area by individual developments. Originally it was occupied by a few very large houses, but as time has gone on roads have been constructed and smaller houses have been built in the gardens of the bigger houses, until you get this terrible jumble right in the heart of the city of Liverpool, behind a building which you all know so well, St. George's Hall.

My next slide shows the original sketch prepared for the redevelopment of that area. Again I will be quite candid with you. Perhaps those of you who do not serve a local authority do not realise how one has to descend to depths of deception to produce what looks a very interesting plan, but perhaps a plan which will not be carried out. This plan, I believe, was responsible for the unanimous approval of the council to the redevelopment of that large area of 58 acres. (*Gerard St. Area.*)

The next slide shows the area in its planned form. I would ask you not to bother too much about the drawing on the left, which does not clearly show the condition of affairs to-day; what appear to be light areas there and open spaces are, in fact, insanitary and overcrowded properties. On the right you see the first scheme for redevelopment. It is interesting because it links up the Mersey Tunnel with this new 120-ft. road running right across to the East Lancashire Road. It will be one of the main transport arteries of the North. It is a most difficult area to redevelop; it is curious in shape, and that road, running across almost diagonally, gives one very difficult angles every time it cuts a road which is existing and must be retained.

The next slide shows a diagrammatic sketch of second thoughts. The big building on the extreme right is retained because it is half up. There are flats five storeys in height and approximately 100 ft. apart, running north and south, as I think they should do. They follow in this particular instance the contours of that part of the site. Facing Byrom Road I have dared to suggest building flats of ten storeys with lifts. That gives a space of 220 ft. between the blocks, and again the buildings follow the contours. This scheme has not yet been considered by the responsible committee, and that idea may have to go and the other form of development may take its place, but I believe at the present time the city would give an infinite amount to be able to provide those enormous spaces right in the heart of Liverpool.

I am told, and indeed I know, that flats cost money, but is not it worth it? Is not it worth it to try it, even if it happens to be wrong? Personally, I do not think that it will be wrong.

The next slide shows the big open space of over two acres to which I have referred, and you will see the school and the other amenity buildings flanking it. If you could see the conditions obtaining to-day you would be able to imagine what that will be like if it is carried out, and again I say is not it worth it just to try it once?

It is all very expensive, of course, but I believe there are other savings which will be effected. I cannot estimate what the saving in health services will be. I once took the trouble to estimate what the savings in police services will be, but I shall not repeat that! I might not give you the same figures this time!

There is a saying in the North—a very vulgar saying—"Where there's muck there's brass." I took the trouble the other day to watch one of the dustcarts collecting refuse in that area, and I found that for every four houses from which the refuse was collected the cart stopped for five minutes. When I went home that night I worked out a little sum. There are at present 1,303 houses in that area, and, assuming that you replace them by 1,303 flats, the saving in the number of stops which would be necessary is most extraordinary. There would be only 26 stops in the case of those flats, as against 326 if the area were rebuilt in cottages, and the saving amounts to 3,900 hours per annum, which is equal, I believe, to £1,000, and that in the collection of refuse for stops only. I know that it is very indiscreet of me to give

these figures in the presence of officials of the Ministry of Health, and then, perhaps, to go a little later and appeal for a subsidy! That is one of the reasons why I read my paper to-night, so that I might not be so indiscreet as I might have been had I had no written paper before me. This, however, is one of the things which weighs very strongly with me in urging this big redevelopment; it is not only the question of what it is going to do in the lives of the people living there but in hard facts you are going to save a very considerable amount of money.

The next slide shows the main entrance to this scheme, which is now half up. The foundation stone was laid this year by the present Minister of Health.

The next slide shows the other end of the scheme, with the trees and the grass, and the next slide shows the proposed elevation for one of the main business roads. The following slide indicates the method which we adopt in blinding the ends of these buildings by the erection of small shops.

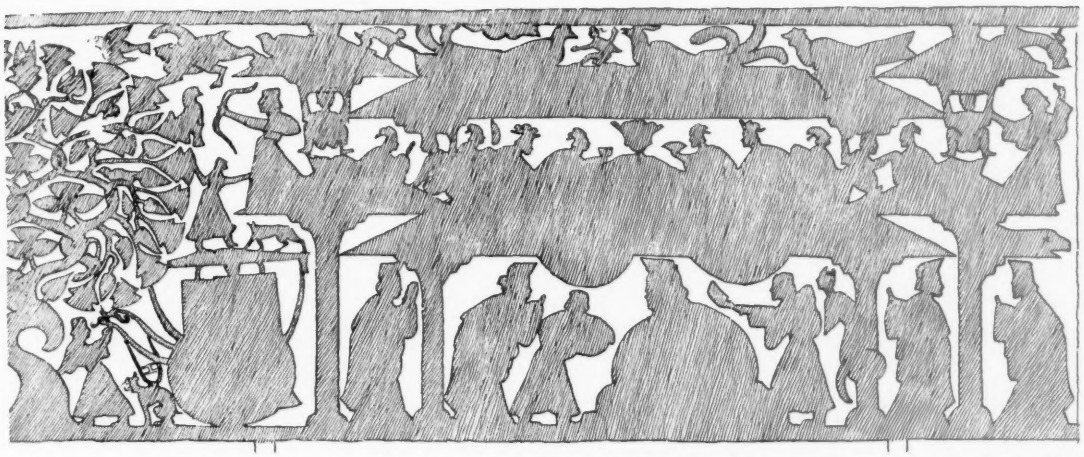
The next slide shows a second scheme which is well in hand covering an area of about 42 acres quite near the docks. At present it is a mass of old buildings, the houses being nearly all more than a hundred years old, and the area is very densely populated. The proposal for redevelopment is shown below. The black spots are buildings which it will not be possible to take down at present. (*Pitt Street Area.*)

The next slide shows the whole of the property demolished between the redevelopment area and Sir Giles Scott's cathedral.

The next slide is a rough sketch showing the shopping centre, and the next shows a group of buildings with the cathedral in the background.

I have made some rather sarcastic remarks about the private speculator, and, to put that right so far as the Liverpool Corporation is concerned, I show you in this next slide part of the garden of an old house which was developed at Larkhill to provide a housing estate. Although we have to demolish these old houses if they are suffering from dry rot and so on, we retain them for the use of the tenants if they are in good condition, and we always retain any special features of the gardens such as you see there.

Huyton Farm Estate. Cottages for aged persons



A drawing by the Author of a part of one of the bas-reliefs from a tomb dating from the second century A.D.—Shantung. Note columns, brackets and caryatides supporting roofs with straight slopes. (After Chavannes, *Mission archéologique dans le Chine septentrionale.*) Reproduced by permission of the Oxford University Press from *An Introduction to Chinese Art* by Arnold Silcock

Early Chinese Palaces and Temples*

By ARNOLD SILCOCK, F.R.I.B.A.

The art of China is well known to all of us. We see Chinese rugs, lacquered cabinets and pottery and porcelain as familiar features in our Western environment, yet comparatively few of us realise that such things, however lovely and delightful, are but dim reflections of an ancient and glorious style. The classic ages of Chinese art are as virile and noble as any in the Western world and no Western art can boast as many centuries of unbroken tradition.

Age-long tradition and ancestor worship have determined the outlook of the Chinese from ancient times. We in the West naturally look up and forward, seeking new ideas, new materials, new methods: just as naturally the Chinese look back, and their veneration for the past is visible in all their works.

Preoccupation with tradition and their consciousness of the ever-present influence of their ancestors has given them an entirely different set of values. The future is looked upon as inevitable but not necessarily desirable. Even a father chiefly desires sons because they must ultimately perform the due sacrifices to the ancestors, including himself. It is therefore not so strange that the Chinese for thousands of years devoted their chief energies to the very highly developed craft of bronze founding, for bronze was the traditional, permanent material used in making the solid sacrificial vessels for the ritual of ancestor worship from century to century. No such importance attached to buildings. So long as sons were reared to respect their parents and worship the ancestors, so long as the bronze sacrificial vessels survived, "building for posterity" was not the main consideration, although it might appeal to the few.

Buildings should be magnificent but not necessarily lasting memorials. Fortifications and tombs should have lasting qualities for obvious reasons but not as monuments to impress future generations. This clinging to the past and disregard of the future perhaps accounts for the temporary nature of structures and their disappearance; but it also explains why the scanty evidence tends to show that the Chinese style has persisted with little change for well over two thousand years.

The earliest remains of Chinese buildings date from the second millennium B.C., the period of the Shang-Yin dynasty. They are scarcely more than traces of the occupation of a site, but they indicate at least the scale of the vanished buildings. These traces consist of the extensive rammed earth foundation of the palace at An-yang in Honan. Below these foundations excavation has revealed pits, which may have been used as cellars for the archives, for large numbers of the latter—inscribed on tortoise-shell and bone—have been found scattered over the site. What catastrophe overwhelmed the palace is unknown, but the fact that this was a palace site is confirmed by the "Herodotus of China," Ssŭ-ma Ch'ien, whose history dates from about the beginning of the first century B.C. The buildings were possibly of a simple, wood post-

* Reprinted from the October number of the *Asiatic Review*, together with extracts from Mr. Silcock's recently published book *An Introduction to Chinese Art*. (Oxford University Press.)

A MODERN ROOFED-IN BRIDGE
From a photo by the Author

and-beam type, stiffened and protected by external walls of rammed earth, like the cob walls of the old Devonshire farmhouse. No traces of brick or tile were found, and the roofs may have been thatched with reeds.

These traditional materials persisted in use and have so persisted to the present day. They are mentioned in a description of a palace of the following (the Chou) dynasty, and we read that "the imperial palace consisted of a vast enclosure, surrounded by high mud or brick walls, in which were the following: The dwelling-houses of the emperor, the empress, the concubines, and their servants; the offices of the ministers, reception halls, and temples; shops for weaving silk and hemp for the use of the court; treasuries for the preservation of the imperial archives, historical documents, jewellery, and other precious belongings of the state or the emperor; depositories for stores and all that was necessary for the maintenance of life. In other words, it was a walled city within the capital city, reserved for the emperor, his household, and his government; and the monarch seldom left it except in his official capacity."* It was, in fact, the model for all the palaces yet unbuilt, the last of which—the Forbidden City in the centre of Peking—is a magnificent example.

The Chou dynasty palaces have also entirely disappeared, with the exception of inconsiderable fragments of brick or tile, which show that more permanent materials must have been coming into use. But about the fifth century B.C. Confucius is said to have admired the paintings with which the walls were decorated, although, beyond the fact that they represented the great rulers and sages of the past, little is known about them. An art which glorified courage, honour, and justice would, of course, earn the approval of Confucius, for he valued art not for its own sake, but merely when it exerted an uplifting moral influence upon human nature.

Considerably more is known about the architecture of the great Shih Huang Ti—"First Emperor," as he bombastically styled himself—who overthrew the Chou and founded the Ch'in dynasty in 221 B.C. With his death twenty years later the new dynasty fell, but in that short space of time his invincible egoism and lust for glory and power had created a vast network of military posts throughout the land. At each of these headquarters he erected palaces so that he and his staff might be suitably accommodated on his whirlwind tours of inspection. But this was not the sum of his achievements. In Shensi, his native state, he reconstructed his capital, Hsien-yang, on a colossal scale. Here he had replicas erected of one hundred and forty-five palace buildings which he had destroyed in the capital cities of his enemies. Here, too, was the Shang Lin hunting park, and through it ran the River Wei, on either side of which the Emperor laid out his own vast palace enclosure. On one bank arose a palace for holding audiences, the far-famed O-p'ang Kung, of which a famous painter of the eleventh century has left an imaginative picture. The River Wei reflected this mighty façade for over a quarter of a mile. Its lower floor was not less than forty feet high, and on its upper floor ten thousand people could be seated. On the opposite river bank, and approached by a roofed-in bridge 280 yards long, stood the still more magnificent imperial palace. This was connected with the subsidiary buildings by mile-long corridors decorated with silk hangings. Its glories were described by Ssŭ-ma Ch'ien (the same historian who had recorded the more ancient palace sites of the Shang-Yin period), yet no vestiges of these later and larger palaces remain.

The name of Shih Huang Ti is always connected with another vast enterprise, the Great Wall of China. Like most great conquerors, his megalomania ran first to vast destruction and then to a vaster reconstruction. He was victorious over the dreaded hordes of Hsiung-nu, drove them into the far north, and flung the Great Wall of China across a thousand miles of new mountain boundary. The Great Wall has been called the most considerable work of man upon earth, and the only one which would be visible from the moon. The truth of this statement seems likely to remain in doubt, but one feels that the shade of Shih Huang Ti would heartily approve it. He was continually setting up stone

* *Outlines of Chinese Art*, John C. Ferguson. University of Chicago Press.

monuments and statues to commemorate this or that event; even the frequent landings he made on a voyage up the sea-coast were not thought too trivial for another series of great memorials. But of all this extravagance only portions of the Great Wall remain. Its construction strengthened and extended existing earthworks and went on for many years. Tens of thousands of men were employed upon it, and the famous General Mêng T'ien was in charge of the work. Mêng T'ien's fame, however, rests largely upon the legend that he was the inventor of the writing-brush.

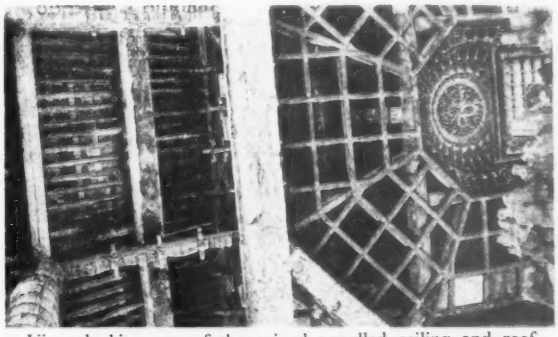
In the colossal mausoleum they constructed for Ch'in Shih Huang Ti thousands of workmen were buried alive, together with all the imperial concubines who had not borne male children.

Confucius had attacked but he had not killed the barbarous practice of immolation, but it gradually died out, and its place was taken by the tomb figures and models of animals which occur in the following Han dynasty. It is from these graves that evidence of many types of Han buildings is gleaned. First of all, the ruins of the early tombs display types of internal decoration, and, secondly, the growing custom of interring pottery objects has provided models of everyday things, including some of actual buildings.

Some of the early coffin-chambers, though constructed as underground vaults with inclined roads tunnelled down to their entrances, were provided with dignified portals in the form of massive doorways of stone, flanked by a pair of stone columns on iron bases. The doors also were often of stone, though later bronze was used. Internally, the timber-lined chamber was decorated in coloured lacquer, in a scheme of decoration where friezes depicted symbolic patterns amongst which fabulous animals disported themselves. Remains of bronze hinges, handles, and other fittings, many inlaid with silver and gold, show what similar fittings must have been like in the dwellings of the living.

Many of the Han dynasty palaces are known by their names and descriptions in written record of the time. Among the earliest were the Wei Yang Kung, erected by Hsiao Ho, who died in 193 B.C., and the Kan Ch'üan Kung. Fuller records of the mural paintings of this time are also available, and the scenes depicted by the painter in the palace of Prince Liu Yü, Duke of Lu in Shantung, 154-129 B.C. (the Ling-Kuang Palace), were described by the poet Wang Yen-Shou as follows: "Heaven and Earth, strange spirits of the Sea, gods of the hills, the five dragons with joined wings, Fu Hsi with his scaly body, Nü Wo with serpent limbs, Huang Ti, and the great Yü; furthermore the Three Kings and many riotous damsels and turbulent lords, loyal knights, dutiful sons, mighty scholars, and faithful wives." Paintings of the same kind decorated the interiors of the more imposing tombs. Nothing remains of these, but fortunately their type is known because it was the custom to transmit records of famous paintings by carving copies in stone. The celebrated second-century bas-reliefs from Shantung are good examples. They are perhaps more valuable as representations of lost mural paintings than as examples of sculpture.

The buildings which these paintings, silk hangings, gold and silver, bronze and lacquer-work embellished are recorded in literature, but no ruins of palaces and temples have come down to us. The written accounts show that they were founded on the models left by Shih Huang Ti, but the great acreage which some of them covered could not guarantee their survival, since both in substance and constructional form they were inevitably perishable. No satisfactory reason has been given to account for the age-long Chinese preference for impermanent timber over the stone and brick of the monumental architecture found in every other great civilisation. Stone was not scarce, and the Chinese were as expert at firing brick as they were in making pottery, yet timber was preferred for all but great engineering works like bridges, towers, and military defences. Even the walled city was actually protected by earthworks, which only later were encased with a façade of brickwork. The same thing was true of the Great Wall of China. Its bricks are found to bear the seals of later emperors, for the rampart of Shih Huang Ti was throughout most of its length a colossal earthen embankment which, with its slopes filled in, still forms the core of the later brick and battlemented wall. It was thus, too, that Hadrian threw up his breastwork across Britain as a defence against the Picts; the stone revetment was added by Severus, although the whole was (and its ruin still is) known as Hadrian's Wall. The above-mentioned Shantung bas-reliefs show two or three examples of architecture which strongly resemble traditional modern forms, with the striking exception that the low-pitched tiled roofs are straight, not curved as in later times. However, overhanging wood-bracketed eaves are indicated as well as widely spaced wood columns. There is no doubt that the ever-popular rammed earth was also in use in



View, looking up, of the ruined panelled ceiling and roof of a seventeenth century octagonal pavilion in the Pei Hai palace enclosure, Peking. From a photo by the Author

An 18th-century example of devotion to the traditional material. Wood columns, screens and throne. From a photo by the Author

Han times, especially in the foundation platform, which would often extend to form a terrace surrounding the buildings. Brick and stone facings would be used here, and stone, bronze, or iron bases were put down for the columns. But the superimposed structure was all of wood. A series of bays formed with ranks of tall timber posts, more or less equidistant from each other, were connected lengthwise of the building by wood lintels and transversely by horizontal roof beams. Above these came the roof timbers, on which the sloping rafters were laid. Small wonder that in course of erection a Chinese building resembles at one time a forest of masts and at another a gargantuan game of spillikins. The bays of columns stand free without cross-bracing, and the roof beams have no diagonal struts. When covered with heavy earthenware tiles, the whole of this framework stands on its wooden stilts and is held down solely by the weight of its roof, and an undue reliance on Providence. Since there are no struts, braces, or buttresses to counteract diagonal movement, the rectangular framing is likely to collapse lengthways in a hurricane or a slight earthquake, or to burn to the ground in a fire. If it escapes, eventually the wood carcase will rot unless kept continually in repair. Yet the Chinese remained satisfied with such primitive, vulnerable structures and even added to their risks by using wood panelling generally for internal partitions and often for external walls. This explains the total disappearance of all the great buildings of a date prior to our era, and of the great majority constructed during the next fifteen hundred years. In the temples of Greece and Rome the masonry has survived, to some extent, the attacks of time, of fire, and of armies crazed with fear or conquest, but the timber-pillared halls of coeval Chinese civilisation scarcely survived from dynasty to dynasty.

There are many ingenious reasons put forward to account for this extraordinary preference for temporary building materials. One explains that they were cheaper and easier to procure as well as easier to build with. And this is true of rammed earth, which had the additional advantage of being a very ancient and well-tried mode of building. At first sight timber also seems to answer to this description, but as a matter of fact trees sufficiently large to convert into columns, for any but small buildings, were scarce and their transport was expensive. Probably, however, the custom of using posts and beams of wood developed gradually in early days, and the technique of jointing and erection improved slowly, keeping pace for a time with the modest degree of accommodation required in a primitive community. But with the vast building schemes of Shih Huang Ti the demands for loftiness and wide-spanned spaces must have overtaxed the forest resources of the new empire. So it seems reasonable to suppose that for the first time the huge *nanmu*, the tallest and straightest of the trees that throng the country surrounding the source and upper reaches of the Yangtse, was felled and floated down a thousand miles of river to Central China. Shih Huang Ti came from the west, and the people of his native state of Ch'in would therefore be familiar with the *nanmu*. The first, or Western Han, dynasty was, as we have seen, also famous for its great palaces, while ever since temples have been built with columns wrought from *nanmu* trunks carried by water all the way from the Tibetan foot-hills which fringe the far western border of Ssŭ-ch'uan. The *nanmu* is a superb, lofty, deciduous tree, and the trunk reaches sometimes as much as twelve feet in girth. It closely resembles mahogany in its size, toughness, fine grain, and pale rose colouring, which turns to a beautiful dead-leaf brown with age. In fragrance it resembles cedar-wood, and columns made from it still exhale a faint perfume through temple halls built centuries ago. Like mahogany, its smooth but tough, close texture makes it splendid stuff for furniture and carving, and a slight natural oiliness also helps to render it more durable even than oak. In fact, it may be said that the *nanmu* is to China what

the oak is to England. It was for all these reasons a most suitable, but also a costly, material for building, and its continued use has been said to be due chiefly to the greed of generations of officials, who made vast sums in "squeeze" from the traffic in it. Surely, however, there must be a more adequate reason for such popularity, and it should be remembered that with the Chinese the claims of beauty and custom ranked higher than most. They were devoted to the arts of peace and in everything bound by traditional usage. It would therefore be natural for them to desire a continuance and expansion of the spaciousness and sense of airy grace which (they believed) only an interior thronged with the tall proportions of wood columns could give. And in the case of the imperial buildings cost was not considered, for the emperor was a despot with the power and right to surround himself with splendour.

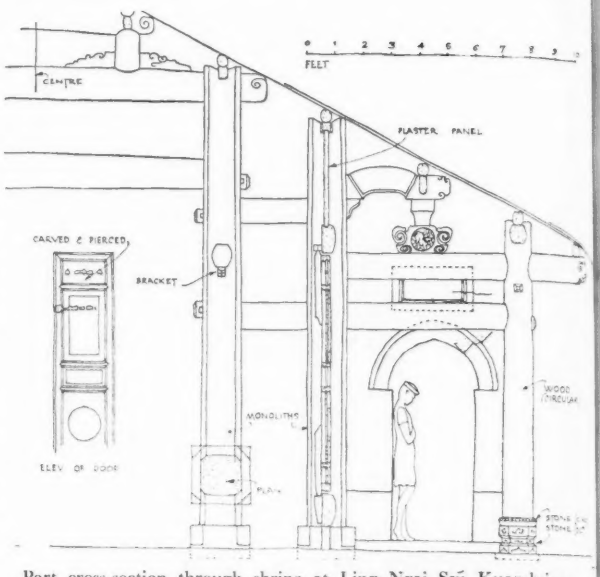
Another theory put forward is that the Chinese adopted timber and developed their columnar style as aids in evolving an abstract scale of proportions which would express their idea of the pattern of the universe. But although it is true that a wood post-and-beam architecture lends itself to ease of adaptation, and experiment in the varying of proportions, it can hardly be said that these were the conscious reasons for its adoption. Further, it is doubtful whether an abstract scale of symbolic significance had any part in guiding the choice of proportional ratios. Of course, symbolic as well as practical considerations governed the disposition of the parts, such as the planning of the entrances to and internal arrangements of a hall of audience, the placing of the throne therein, and so on. But practical expediency came first, the dictates of custom and the love of beauty second, and abstract mathematical science last. Though "symbolically minded," the Chinese were not "mathematically minded." They never produced an Archimedes or a Euclid. For these reasons theories of "dynamic symmetry" and "spatial unity" may be ignored, although the influence of symbolism and geomancy must be reckoned with. The large view of the universe which distinguishes the philosophy and religion of the Chinese has often been remarked upon. They regarded the cosmos as a complete harmony: heaven, the spirits of ancestors, earth and (in his minor part) man, with mountains, rivers, trees, and clouds, the sun, moon, and stars—all were individual living entities, indispensable notes and chords. These were the elements which combined and composed into a "music of the spheres" a oneness of all things material and spiritual. This conviction, interpreted by their gift for imagery, naturally expressed itself in a symbolic unity in all the manifestations of their art. It is seen in the harmonious order of ceremony governing daily life; it was displayed in the design and detail of the tombs. And, later, it came to be the guiding principle in that universe in little, a symmetrically planned imperial city, the home of the highest human representative of cosmic order, the Son of Heaven. How far back in time this idea developed it is difficult to say, but in buildings of fifteen hundred years later this cosmic symbolism governed not only choice of site, orientation and relation to other buildings, but the form and disposition of important parts of the design, and detail, even to the carved and lacquered ornament. There is little doubt that this idea germinated during the Han dynasty. But this is not to say that a rigid, abstract scale of proportions, symbolising the design of the universe, dictated the theoretical laws of *architectural* design, and decreed the dimensions of every structural element and the ratio of voids to solids. If, however, such a mathematical theory were ever proved, one could hardly expect it to apply to buildings of an early dynasty like the Han (about the beginning of our era), even though in the scientifically-minded West Euclid and Archimedes had already come and gone two hundred years before.

This statement does not imply any disparagement of the Chinese genius. It is well known that the period was noteworthy for a revival of learning and the growth of lexicography, poetry, calligraphy, and painting, besides the development in the crafts of the lacquer- and metal-worker, the potter and the weaver. All these activities were aided by a freer communication with Western civilisations, due largely to the travels of the celebrated Chinese envoy Chang Ch'ien at the end of the second century B.C. They are recorded by the Great Chinese

ONE OF THE CITY GATES OF PEKING
The tops of the arched gateways are visible. Note the shoulders and heads of human figures showing above the stone battlements and the scale thus given to the timber superstructure with its great *nanmu* columns
From a photo by the Author

historian of the time, Ssŭ-ma Ch'ien, whose name was mentioned above. While Chang Ch'ien failed in his original mission to conclude an alliance with the Indo-Scyths, he brought back news of the countries of Western Asia, especially of Hellenised regions such as Bactria and Ferghāna. The influence of Western civilisations becomes more and more noticeable during the Han dynasty, but it can be seen less in architecture than in the other arts. An exception may perhaps be found in the late tombs, arched and vaulted in glazed polychrome brickwork, which have just been discovered in Annam, where flourished a southern offshoot of the great Han period. Among the grave relics of this Indo-Chinese culture were also found terra-cotta models of groups of buildings, identical in type with contemporary examples in China itself.

These models of buildings, recovered from the tombs, give a remarkably intimate picture of everyday life in Han times. The period represented in this grave pottery covers roughly four hundred years—two hundred years before and two hundred years after the birth of Christ. Not only are models of multiple-storeyed fowling towers and other isolated buildings found, but complete models of such groups as farmhouses with courtyards, outbuildings, wells, and waggons, not to mention the farm hands and animals, inevitably reminiscent of a well-equipped Noah's Ark. But the most distinctive characteristic in all the various types of buildings represented is the utter enslavement to tradition which they display. Of all the arts, architecture shows the least deviation from stereotyped, primitive forms. Even Shih Huang Ti, who changed the face of China and set the artist free from the bonds of tradition, apparently did not initiate a new architectural style ; he merely built in the same way,



Part cross-section through shrine at Ling Ngai Ssŭ Kuan-hsien, W. China, showing typical roof construction. Built *c.* 1750
From a drawing by the Author

but on a grandiose scale. So also the stone monumental pillars of Han times, which are crowned with representations of tiled and beamed roofs carved in stone, disclose exactly the same kind of tile, the same system of construction and jointing in the roof beams which are in use at the present day. These facts are borne out also by the actual specimens of Han roof-tiles which have survived.

AN EXAMPLE OF THE EXTENSIVE USE OF TIMBER AND THE LACK OF A RIGID SCALE OF PROPORTIONS
From a photograph by the Author

With the next period, however, comes a change, for a new and powerful impulse had reached China. Buddhism had been introduced in 2 B.C. or thereabouts, and with the new religion there soon flowed into the country fresh art influences of Indian origin. Up to the end of the Han dynasty the religion had little effect upon Chinese art. The first Chinese Buddhist monk was ordained about 180 A.D., the first recorded Buddhist temple was erected in 190 A.D., and the Han period closed amidst the confusion of civil war in 220 A.D. Little is known about the art of the third century owing to the confusion into which the country was plunged by

anarchy and wars with the Hsiung-nu. But during this time—legend states—the first pagoda was built at Nanking, which in later times was also the site of the famous Porcelain Pagoda. At the beginning of the fourth century came the Tartar invasion and the supremacy in the north of a ruling race who were devout Buddhists. They founded the Northern Wei dynasty, and the period became noteworthy for its great building activity, the erection of monasteries and pagodas, and the introduction of the curved roof.

The building of the first pagoda has just been mentioned. It is probable that its design, like that of later Chinese pagodas, was largely a development of a foreign type of tower, knowledge of which was introduced with Buddhism. The prototype was an Indian monument called a stūpa, the common form of Buddhist reliquary. This first pagoda was probably a semi-stūpa type, because the builder " piled up metal discs at the top and multiplied the storeys below. In addition, the buildings constructed all around could hold 3,000 persons. . . ."* This description would serve equally well for the now rare stūpa type of monastery which can still be seen in the mountain range that separates China from Tibet. The lower portion of the building is a widespread base consisting of seven storeys diminishing upwards like a stepped pyramid. Above this rises a central tower shaped like an inverted bell and handle. The whole design is a close parallel to the fully developed Indian model. The latter had a stepped platform surmounted by a hemispherical or semi-ovoid dome from which rose a square plinth carrying a round central shaft. This was decorated with " piled-up metal discs," set horizontally one above another. The discs resembled a series of superposed umbrella-like roofs pierced by the " stick " or central shaft.

As the stūpa spread north and eastward its design evidently became modified in the course of its dissemination through Burma, Nepal, and the Himalayas. And, thus modified, the Himalayan architecture of wood probably influenced the first pagodas in China, which, record states, were built of timber. Surviving examples show that each modification tended to increase the importance of the tapering tower with its series of rings or discs. Moreover, it is known that in the mid-fifth century a Chinese pilgrim in India recorded in his journal the measurements of Kaniska's great stūpa at Peshawar. Again, the Empress Hu of the Northern Wei dynasty sent a mission to India in 518 A.D. which brought back bronze models of the five finest stūpas, including the Kaniska building. The Empress also built a nine-storeyed timber pagoda a thousand feet in height, and, so the story goes, at the top it carried a hundred-foot shaft upon which thirty gilt bowl-shaped discs rose one above another. But its history was tragically short. Legend says it took fire and burned to the ground only thirty years later amidst scenes of hysterical grief, and that three of the monks even threw themselves into the flames.

PAVILION TYPE OF PAGODA
Huang Lo Lou in Wuch'ang. From E. Boerschmann's *Chinesische Architektur*, Wasmuth, 1925

The oldest pagoda still in existence is a brick structure, built in 523 A.D. during the Northern Wei period, at Sung Shan in Honan (one of the five sacred mountains of China). It is an octagonal building of striking design set in beautiful surroundings. The date assigned to it is confirmed by the evidence of its style and by ancient records. This tower is extremely beautiful, a model of the method whereby the best is absorbed from foreign sources and united with something distinguished and distinctively Chinese. It has a convex outline, and, instead of roofs, a series of horizontal string courses resembling rings rising upon its shaft. Although built of brick, its design is still very like the tower of a wood Nepalese stūpa temple, and it may well represent the transitional stage from which evolved the many-roofed pagoda of later times. It seems probable, then, that the stūpa's very typical tapering shaft, carrying superimposed discs or rings, ultimately evolved into a tapering tower, divided into diminishing storeys by a series of umbrella-like roofs. These roofs thus reflect the form

*I am indebted to " Writings on Chinese Architecture," W. Perceval Yetts, *Burlington Magazine*, March, 1927, for this account, cited by Pelliot, and for some of the facts (but not the theories) about early buildings given here.

of their earliest stage of evolution in India, for they began as actual umbrellas fixed upon the stūpas. Their history is one of those fascinating by-paths of art for the tracing of which credit must be given to the archæologist.

Umbrellas occur as emblems of sovereignty in the wall-paintings of ancient Egypt. Centuries later they appear on the sculptural reliefs of Assyria, and later still in the sculptures of Persepolis. Their symbolic use spread to the East, and they became round, flat-topped affairs, decorated with bells, in the India of King Asoka. He had raised Buddhism from the obscurity of a small sect to the status of a recognised religion. In those days the stūpa consisted of the usual steps, terrace, and dome, with a large stone coffer for the relics raised upon the dome's crown. The coffer was closed by a heavy stone lid as a protection from robbers, and, as the robbers became more enterprising, so the custom grew of adding more and heavier slabs. When the religion obtained the support of Asoka he permitted his royal emblem, an umbrella (probably made in copper), to be placed on the topmost slab. But even this did not scare marauders for long, so, as with the previous custom of adding lids, more and more umbrellas were placed on the reliquary by the trusting mourners. Eventually the stūpas began to look like large boulders with a swarm of mushrooms sprouting from their crowns. At last a master mason more brilliant than his fellows hit upon the scheme of providing one central staff which could carry an indefinite number of umbrellas. Thence it was a short step to the wood mast with a series of metal discs, and from this to the stone shaft carved with superimposed rings and small triangular pendants representing the bells at the circumference. The increase in size and the heavier proportions required by a stone structure would help to influence the sturdy pagoda-like form of early towers of this type in China, and of such is the magnificent example at Sung Shan. From then onwards the shaft retained its increased importance as a tower, while the domed lower portion, its original purpose long forgotten, fell into disuse and soon disappeared. As the true pagoda form evolved it became the custom to shield the projecting lower storeys from the weather by making the rings in the form of circular pent roofs, and in this way a design appeared which was strongly reminiscent of the Indian form—the central shaft with superposed umbrellas.*

The evolution of the form does not, however, help to explain the purpose for which pagodas were built. They appear to have lost all connection with the stūpa as a Buddhist reliquary, for, as we have seen, the dome and coffer features of the design atrophied and disappeared in the pagoda form, leaving only the shaft-like tower with its umbrella roofs. Many theories have been advanced to explain the significance and lasting popularity of this, an architectural form which seems of no practical value and is the expression of no material need. Chief among the theorists is a German scholar who believes that the Buddhist reliquary appealed forcibly to Chinese ideas when it was imported from India, as towers had always been popular with them. He, perhaps, is thinking of the *t'ai*, lofty look-out towers reputed to have been first built by the emperors of the Shang-Yin period in their hunting parks, and of the smaller decorative towers of wood which were built in later times.*

None of his theories about the origin of pagodas seem entirely satisfying, although all are interesting. The fact remains, therefore, that this beautiful feature of the Chinese landscape serves no known purpose. By the Confucianists they are supposed to control *fêng shui*, the " influences of wind and water," and so to bring good luck to the place that lies within their shadow, but it is doubtful whether the Buddhists connect them with any religious purpose. Yet although they are no longer regarded as depositories for the relics of Buddha's body, none the less a devout Buddhist is still sometimes alleged to acquire merit by building one. When he does so the Chinese genius always leads him to place it just where its slender outline will most aptly provide a foil for the surrounding landscape and show to posterity that he can build beautifully in the monumental manner when the spirit moves him. The Gothic spire has been the subject of philosophic speculation of the kind put forward to account for the equally lovely and equally useless pagoda. Perhaps after all there is something in the notion that in periods of religious fervour the soul of man expresses aspiration by building towers pointing to the skies, whether he is a follower of Christ or Buddha. Certainly the priesthood of both religions taught the existence of paradise above, a conception utterly without appeal to the materialistic China of Confucius or the even more materialistic Rome of the pre-Christian era, and both these periods produced " horizontal " buildings, not slender, lofty towers.

The curved roof is another charming feature often thought of as typically Chinese. But it is no more indigenous than the pagoda or the *p'ai'lou*. The hipped roof is almost universal in Chinese buildings, although the ends of a roof are often found with the upper half gabled and the lower half hipped. In ancient times the usual kind was the hipped roof with four straight roof slopes.

It will be remembered that this type was shown in the bas-reliefs of the Han dynasty from the Wu Liang tombs in Shantung, and there is no evidence of the building of *curved* roofs before the Northern Wei dynasty. During the latter period, however, curvilinear roofs were evi-

* I have drawn freely from the full and scholarly account of the evolution of the umbrella motive given in " The Development of Stupa," A. H. Longhurst, *Journal of the Royal Institute of British Architects*, vol 36, 1928.

* *Chinesische Architektur*, Ernst Boerschmann, Wasmuth, Berlin, 1925.

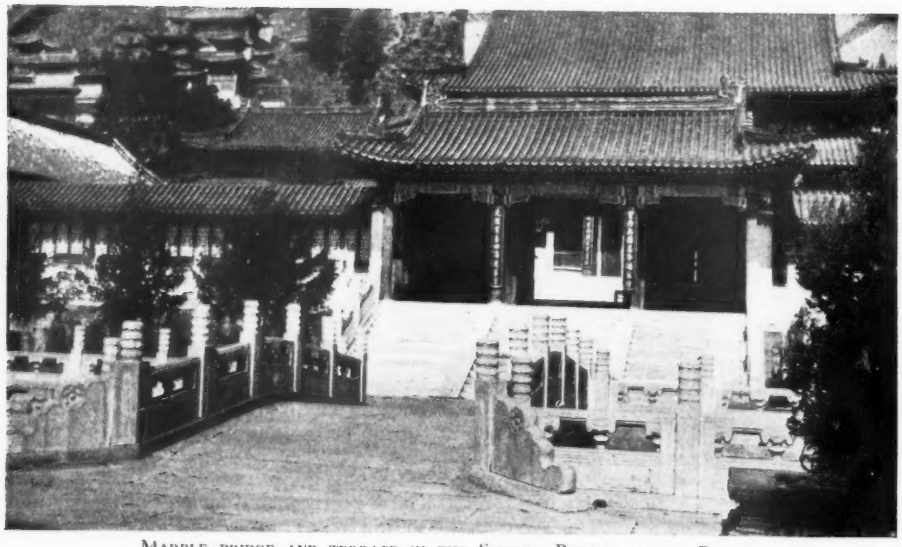
THE GREAT WALLS AND TIMBER SUPERSTRUCTURES OF THE FORBIDDEN CITY, PEKING
From a photograph by the Author

dently well known, for a roof with the boldest possible sweep at its horned hips is shown on a stone relief—a stele—of this time. No actual remains of such buildings now exist because the fatal custom of constructing them in wood persisted, but there is little doubt that the roof mentioned above represented that of a Chinese building influenced by the curvilinear roofs of Indian Buddhist architecture.

The origin of the curved roof has, perhaps, aroused more controversy and given rise to more far-fetched theories than any other single feature of Chinese art. One of the most popular theories alleges that its form has persisted from the sagging curve of skin tents, the dwellings of the Chinese in a nomad stage of their history. But, apart from other objections, there is no evidence that such a nomad stage ever existed. Another theory is that the concave roof lines were built in imitation of the curving branches of pine-trees, and that the little figures of fabulous animals which ornament the hip-tiles represent squirrels running along or sitting on the branches ! The pragmatical school states that roofs were gradually made at a steeper pitch so that heavy rain should drain off rapidly ; at the same time they were made to project far out at the eaves in order to throw the rain-drips clear of the walls. Later, upcurved eaves had to be adopted to ensure that light and air should flow freely under them into the building. This theory is not borne out by other equally practical considerations, for roofs curve throughout their slope, not at the eaves alone, while doors and windows rarely open high up under them. The explanation is probably still simpler. Earthenware roof-tiles, though of various designs, have always had in common the one attribute of great weight. On the other hand, the rafters upon which they were laid were thin strips of wood that tended to sag under their load. This was the ancient practice both in India and China, so far as can be seen in old carvings and rock-cut reproductions of tiled roofs, and it is still the practice at the present day. A slight bending of the rafters was therefore recognised as natural in building small roofs, and in the larger it might well have been purposely exaggerated in order to obtain the pleasing effect of a more definite curve. But this exaggeration was first practised in India over five hundred years before the Northern Wei period in China, as we see from the wall-paintings in the caves of Ajantā and in the carved reliefs at Sānchī. It seems likely, therefore, that this curvilinear form, first developing in India, became known to the Chinese, and, like many features of Indian art after the introduction of Buddhism, was in course of time assimilated.

Much has been written concerning the beauty of the architecture of the Sung dynasty, and Marco Polo, the Venetian, gives us a most fascinating description of the life and environment of the Sung capital after it had moved once again further south. He visited it near the close of the epoch, when, in the last effort to escape from their enemies, the Sung emperors had removed the Court to the beautiful city of Hang Chou. Here, in a setting of romantic loveliness, of graceful palaces reflected in still lakes, and numberless marble bridges spanning its canals, this gentle and courteous people found for a time a haven from the northern menace. But they were soon to be rudely awakened. Kublai Khan with his Mongol armies swept across China. He

A LAKE-SIDE LANDING STAGE AND PAVILION
From a photo by the Author



MARBLE BRIDGE AND TERRACE IN THE SUMMER PALACE OUTSIDE PEKING
From a photo by the Author

made Peking his capital, and the city entered on a new era of architectural magnificence.

The following is a part of Marco Polo's description of Kublai Khan's palace :

"You must know that for three months of the year the Great Kaan resides in the capital city of Cathay. . . . In that city stands his great palace, and now I will tell you what it is like.

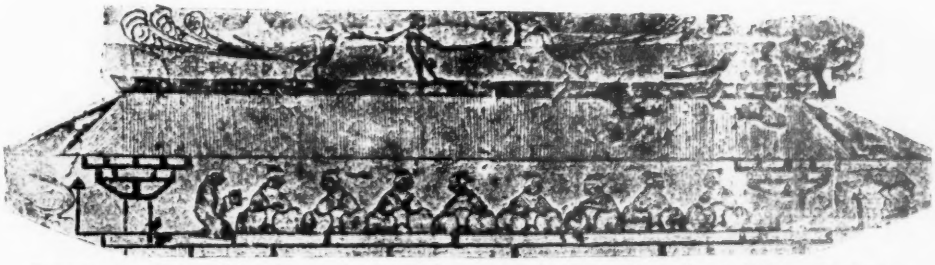
"It is enclosed all round by a great wall forming a square, each side of which is a mile in length . . . it is also very thick and a good ten paces in height, white-washed and loopholed all round. . . . Inside this wall there is a second. . . . In the middle of this enclosure is the Lord's Great Palace, and I will tell you what it is like.

"You must know that it is the greatest palace that ever was. The palace itself has no upper story, but is all on the ground floor. . . . The roof is very lofty, and the walls of the palace are all covered with gold and silver. They are also adorned with representations of dragons (sculptured and gilt), beasts and birds, knights and idols and sundry other subjects, and on the ceiling, too, you see nothing but gold and silver and painting. On each of these four sides there is a great marble staircase leading to the top of the marble wall and forming the approach to the palace.

"The hall of the palace is so large that it could easily dine 6,000 people ; and it is quite a marvel to see how many rooms there are besides. The building is altogether so vast and so rich and so beautiful that no man on earth could design anything superior to it. The outside of the roof also is covered with vermilion and yellow and green and blue and other hues, which are fixed with a varnish so fine and exquisite that they shine like crystal and lend a resplendent lustre to the palace as seen for a great way round. The roof is made, too, with so much strength that it is fit to last for ever."*

The third emperor of the Ming dynasty also transferred the capital, in this case from Nanking to Peking, and endeavoured to rival the earlier splendour that city had displayed under Kublai Khan. Tyrannical despotism shows along the face of the gigantic battlemented outer walls and the vast palace enclosures. The Forbidden City and most of the monumental architecture of Peking, the brick façades enclosing mile-wide sections of the Great Wall, the imperial tombs laid out across the valleys—all owe their impressive grandeur to the dominating force and ruthless oppression of Yung-lo and despots like him. The patriotism which had fired the people to flock to the standard of a rebel Buddhist priest—the "Beggar King"—and to overwhelm the Mongols, had then raised the native dynasty to power. But the first Ming emperors soon quenched this patriotism with oppression and savage massacres designed to crush opposition to an entrenched and absolute monarchy. The vast buildings of this time call vividly to mind the blood and tears which must have dripped upon their frowning walls, but their massive timber columns still stand as if defying the attacks of time and tempest which have swept away all, or almost all, the architecture of earlier ages.

* *The Book of Marco Polo, the Venetian*, translated by Sir H. Yule. Murray.



Reproduction of a rubbing from a stone relief, showing the upper floor of a building with timber columns, beams, corbelled brackets and straight roof slopes. From Hsiao T'ang Shan, Shantung, 1st century B.C. (Reproduced from Bushell, *Chinese Art*, Vol I, Fig. 12.)

The house is designed to fit a typical suburban building plot

THE DOMESTIC USES OF ELECTRICITY

THE DEMONSTRATION HOUSE BUILT AT STOKE BISHOP, BRISTOL, BY THE ELECTRICAL ASSOCIATION FOR WOMEN

Architect: Adrian E. Powell [*A.*]

This house has been built with the general aims of demonstrating how electrical apparatus can lighten domestic labour in the ordinary middle-class suburban house; of discovering what amount of apparatus can be included in a total building cost of £1,000, and what the annual cost of current will be; of encouraging the practice of including electrical apparatus as standard fitments in houses; and of observing how far manufacturers can supply electrical equipment for dwellings at reasonable prices. Also the architect has realised and tried to show that the use of electricity solely for lighting, heating and power will have a considerable influence on domestic planning.

The building of this house is a useful piece of research work that has long been needed. A great variety of electrical apparatus for domestic use has been marketed, but architects as well as householders have had no reliable means of determining what amount of apparatus it is worth while including in a house of given price or what the cost over a long period of current and replacements will be.

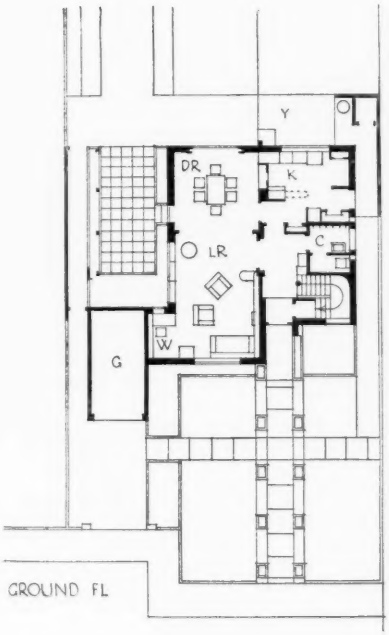
COSTS AND EQUIPMENT

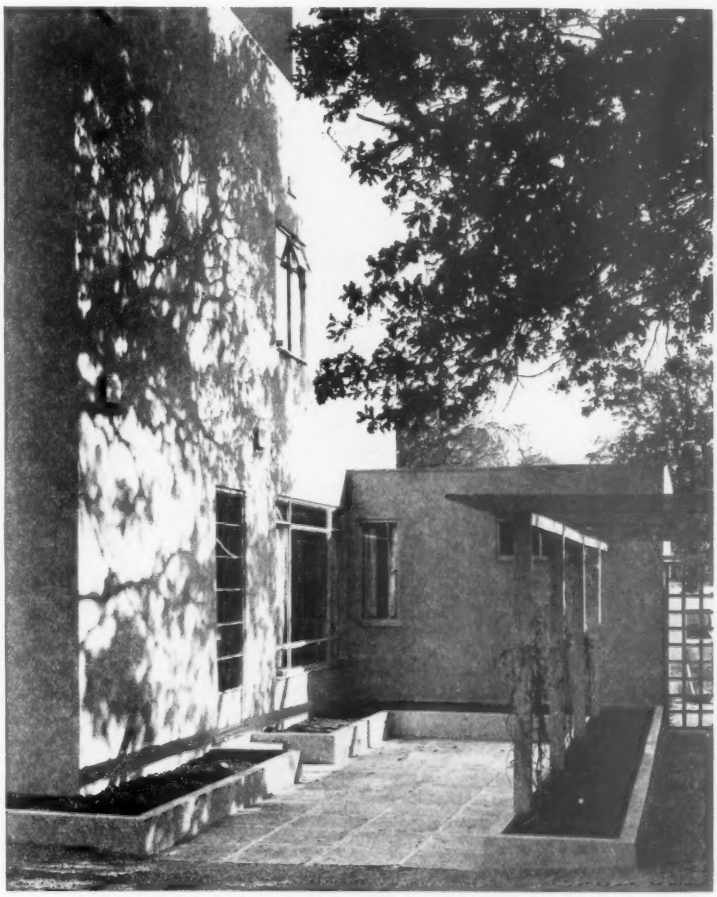
The all-in price of £1,000 covers the structure of the house and a certain amount of fixed electrical equipment; it does not include the cost of the site, garden layout or furnishing; some of the large items of electrical equipment are hired.

The fixed equipment consists of 3 directional fires, 6 inset fires, 12 feet of tubular heating, 3 electric clocks, a linen cupboard heater, a towel rail, a refrigerator (2 cubic feet), and a fan. All these are included in the £1,000. The hired apparatus consists of a bath water heater rented at 7s. 6d. a quarter, a small water heater at 2s. 6d., a washboiler at 2s. 6d., and a cooker at 3s. to 5s., according to size.

The standing charge for electricity, based on rateable value, is approximately £6 per annum, and the current rate is ½d. per unit. This price for electricity, though by no means general throughout the country, is obtainable in a great many districts, and there is a continuous tendency for current costs under the Grid System to be reduced. Since the house is new, no figures of actual running cost have been obtained, but the E.A.W. estimate that with liberal use by an average family this should not exceed £30 per annum, including the standing charge and all hiring charges. This figure is not too high for the income of the average owner of a house costing £1,000 ; but it seems to prove that when current costs are above ½d. a unit, the all-electric small house is not an economic proposition.

Other items of unfixed electrical equipment of all kinds are displayed in the house. This is, perhaps, unavoidable, but tends to give the impression to the casual visitor that they are all included in the £1,000 first cost and £30 running cost. Many of these are luxuries, depending on the ideas of the householder ; for example, such items as a food heater, bed warmer, milk warmer, curling tong heater, cigarette lighters and





Reference to Plans : L.R., Living Room ; D.R., Dining Room ; W., Writing Recess ; C., Cloaks ; K., Kitchen ; Y., Yard ; B.R., Bedroom ; B., Bathroom

Right : The small paved garden is overlooked by and approached from the living room

The kitchen. On the left is the service hatch and there is a second hatch for used dishes delivering direct on to the draining board

floor polisher. On the other hand, there are probably few owners of electrically equipped houses of this size who would not regard a vacuum cleaner and an electric iron as necessities. These, possibly, come under the heading of furniture rather than under fittings fixed to the structure, but their running cost would have to be considered in the domestic budget.

A generous and skilfully designed lighting system is, however, included in the £1,000, and certainly proves that it is possible to provide a great deal more than the usual central ceiling point and skirting plug in each room. The architect has shown that the modern technique of decorative and indirect lighting is applicable to the cheap house.

A certain amount of indirect saving in annual costs should be noted. There are no charges for alternative methods of heating, redecoration costs will be reduced, and there will probably be a saving in the time of a daily maid or charwoman. Moreover, unlike most suburban houses, this house is heated throughout. The architect has estimated that the saving in flues, chimney breasts, stacks, etc., in a house of this size is £40. Against this, the whole electrical equipment, exclusive of fixing, cost £51.

THE HOUSE

The site is a typical suburban plot of 45 feet frontage and 142 feet depth. The architect has, therefore, had to follow to some extent the now typical suburban plan having one living room facing the street and the other the garden. This plan gives a reasonable amount of insulation, whatever the orientation of the site. The living room in Mr. Powell's plan can obtain sunshine throughout the day except for a brief period. As built, the two rooms are separated by a curtain, but the plan would allow of any type of partition or doors if required ; there is direct access to the dining-room from the hall ; at this point there is an ingenious door that can be fastened in any of three positions. The sheltered, paved garden behind the garage and the windowed writing recess in the living room are planning points worthy of note.

The detail equipment is well thought out. For

example, the telephone and directory are properly accommodated in a hall fitting that also contains a small electric fire, has space for a seat and permits writing in comfort; there is a cupboard under the stairs that will take a perambulator, and there is a mirror for last-minute adjustment of women's hats; the writing recess contains a tubular heater at the writer's feet; all cupboards are lit inside by door-operated switches; in the child's bedroom and kitchen directional fires are fixed high on the wall; the linen cupboard heater is thermostatically controlled. The clocks are wired back to the meter, so that cutting out the main switch or the blowing of a power circuit fuse does not stop them. The bedroom fires are controlled from the beds.

The kitchen, even without the numerous loose electrical gadgets on exhibition there, is well-planned and fully equipped. The hatch to the dining-room is on the left of the sink and has two doors; one allows crockery, cutlery and prepared food to be readily accessible from both sides, the other permits used crockery to be placed direct on the draining board. The circulations of the room have been well studied, and the equipment is serviceable and plain. The house is appropriately furnished with good furniture of simple design and reasonable price.

THE STRUCTURE

The structure is of brick with 11-inch cavity walls, cement rendered and distempered. The first floor and roof are joisted, the latter surfaced with asphalt carried over the walls to form a dampcourse to the parapet, which is of reinforced concrete. Part of the roof is paved. The upper and living room floors are of Columbian pine flooring, secret nailed; other floors are finished with magnesium oxychloride jointless flooring. The stairs are of reinforced concrete finished with jointless flooring. Since there are no flues, all rooms have to be ventilated. This is done through the joist spaces by simple perforated ceiling panels; the external ventilators are fitted with baffles to prevent back-draught. All windows are of steel and doors are flush panelled.

CONTRACTORS AND SUPPLIERS

GENERAL CONTRACTORS: Simmonds and Son, Bristol.

ELECTRICAL CONTRACTORS: W. T. Porter and Co., Bristol.

STRUCTURE: Windows, Williams and Williams; asphalt roof, Western Trinidad Lake Asphalt Co.; flush doors, Ace Laminated Products; plaster, Thos. Cox and Co.; laminated board, Jonathan Hill, Ltd.

The sitting room end of the living room; in the right hand far corner is the writing recess

FINISH AND EQUIPMENT: Decorators' materials, Cotterell Bros.; sanitary fittings, Gardiner, Sons and Co.; glazing and "Vitrolite," John Hall and Sons; joinery and built-in furniture, C. A. Hayes and Sons; marble fire surround, Brooks, Ltd.

ELECTRICAL EQUIPMENT: Wiring system, G. Scholes and Co. (Wylex All-in System); switches, J. A. Crabtree and Co.; main switches, fuses and fuseboards, Midland Electric Manufacturing Co.; refrigerator, Electrolux, Ltd.; light fittings, Best and Lloyd, and Troughton and Young (supplied by Gardiner, Sons and Co.); tubular heaters, General Electric Co. and the Wandle Engineering Co.; electric fires, Ferranti, Ltd., and Simplex Electric Co., and Belling and Co. and Hotpoint Electric Appliances, Ltd.; linen cupboard heater, Unity Heating, Ltd.; electric clocks, Ferranti, Ltd., and the General Electric Co.; lamps, Osram, Mazda, Ediswan, Siemens, Cosmos and Cryselco; other electrical equipment (hired or on exhibition), Berry's Electric Ltd., Bulpitt and Sons, Burnley Components, Ltd., Electric and Musical Industries, Ltd., Heatrae, Ltd., Hoover, Ltd., Hotlock, Ltd., Moffatts, Ltd., Thor Electric Appliances, Ltd.

FURNISHING AND DOMESTIC EQUIPMENT, ETC.: Furniture, glass, pottery and fabrics, P. E. Gane, Ltd.; garden, Luke, Rogers and Sons; kitchen fittings, Peerless Kitchen Cabinet Co.

The writing recess has its own window, table lamp and tubular heater

Looking towards the dining room end of the living room

REVIEW OF CONSTRUCTION AND MATERIALS

This series is compiled from all sources contributing technical information of use to architects. These sources are principally the many research bodies, both official and industrial, individual experts and the R.I.B.A. Science Standing Committee. Every effort is made to ensure that the information given shall be as accurate and authoritative as possible. Questions are invited from readers on matters covered by this section; they should be addressed to the Technical Editor.

The following are addresses and telephone numbers which are likely to be of use to those members seeking technical information. There are many other bodies dealing with specialised branches of research whose addresses can be obtained from the Technical Editor. We would remind readers that these bodies exist for the service of Architects and the Building Industry and are always pleased to answer enquiries.

The Director, The Building Research Station, Garston, Nr. Watford, Herts. Telegrams: "Research Phone Watford." Office hours, 9.30 to 5.30. Saturdays 9 to 12.30.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101. Telegrams: "Timberlab Princes Risborough." Office hours, 9.15 to 5.30. Saturdays 9.15 to 12.

The Director, The British Standards Institution, 28 Victoria Street, London, S.W.1. Telephone: Victoria 3127 and 3128. Telegrams: "Standards Sowest London." Office hours, 9.30 to 5. Saturdays 9.30 to 12.30.

The Technical Manager, The Building Centre Ltd., 158 New Bond Street, London, W.1. Telephone: Regent 2701, 2705. Office hours, 10 to 6. Saturdays 10 to 1.

THE DESIGN AND EQUIPMENT OF GYMNASIA

The following memorandum dealing with points in design and details of equipment of gymnasia has been prepared by the Ling Association of Teachers of Swedish Gymnastics. It is a very thorough study, from the user's point of view, of the special problems involved and gives a clear lead in a technical matter on which there has hitherto been a great deal of uncertainty. The basis of the memorandum is a school gymnasium, with shower baths and changing rooms for a class of 30 to 40 pupils. Editor.

Architects, builders and apparatus manufacturers should, when planning a gymnasium, collaborate with the Headmaster (Headmistress) and the gymnastic teacher.

SITUATION

(*a*) Ground floor, gymnasium, and changing rooms on same level if area available, and apart from classroom. If ground space limited dressing-room under gymnasium.

(*b*) Separated if possible from main building with covered passage connecting gymnasium and school.

(*c*) If opening direct on to playground by sliding doors or windows, hard ground preferable to grass.

ASPECT

South or south-east. Sufficient shades or blinds should be provided in summer.

CONSTRUCTION

(*a*) 70 ft. by 40 ft., height *at least* 16 ft.

(*b*) Acoustics should be carefully considered.

(*c*) Gallery should not project over floor area, but should be sloped and seat about 150. Tiers of solid seats suggested. Access should be possible from gymnasium and from outside.

(*d*) Apparatus Room. An adjoining room adequately lighted, under gallery with or without sliding doors, the opening to be at least 6 ft. wide, to hold portable apparatus, and contain a games cupboard with shelves and divisions for balls, braids, etc.

FLOOR

SPECIFICATION OF A GYMNASIUM FLOOR IN SOFT WOOD. RECOMMENDED IF FLOOR IS USED PURELY FOR GYMNASTICS AND ONLY WITH GYMNASTIC SHOES

(1) The boards should run crossways in the gymnasium, i.e., from long wall to long wall.

(2) The joists must be so placed that a certain amount of springiness is produced. 12 in. to 13½ in. in between joists.

(3) To avoid creaking and drumming and to assist resiliency a strip of ½-in. carpet felting can be placed on all joists before the floor is laid.

(4) The floor boards can be made either from specially-selected red deal, or from 100 per cent. rift-sawn British Columbia pine. When the rough board has been planed timber of 1¼ in. thickness should finish 1⅛ in., timber of 1 in. thickness should finish ⅞ in., and should be no more than 3½ in. wide, tongued and grooved for secret nailing. All jointing lengthways of the boards must be over a joist and it is consequently not absolutely necessary to tongue and groove the boards over the ends.

(5) The contractor should guarantee a moisture content not exceeding 15 per cent. in the timber when the floor is being laid.

(6) In some cases it is possible to avoid any levelling of the floor after it has been laid, but if the levelling off afterwards is necessary it must be done by means of a coarse sandpaper machine crossways on the grain. Planing or scraping of the floor must in no circumstances take place as slipperiness is produced.

(7) When the floor is completed it should be treated with three coats of special non-slipping gymnasium floor oil,* which is rubbed (not brushed) on to the timber and allowed to sink in. This oil seals up the pores of the timber and renders it almost immune to damage from washing.

(8) No preparation or sweeping compound containing mineral oil, turpentine, wax or greasy matter must in any circumstances be used on a gymnasium floor.

The following points should be borne in mind when choosing a suitable timber for a gymnasium floor:—

(*a*) A fairly resilient timber.

(*b*) A timber which does not splinter too easily, i.e., a timber

* Procurable from gymnastic apparatus firms.

which can stand a certain amount of " bumping " by heavy apparatus and only show dents without splintering.

(*c*) A timber which is not so close-grained and hard that it will polish itself with use.

(*d*) A timber with not too great a resin content as such timbers become brittle, and are apt to splinter as the resin evaporates and crystallises with age and use.

(*d*) A timber which can stand a certain amount of washing. If a fairly open grained timber, such as oak, is used it is possible to seal up the pores by a coat of boiled linseed oil, which renders the floor practically immune from damage from washing for at least twelve months.

The following are stated as good, but have not been sufficiently tried out to be recommended :—

Pyinkado.

Tasmania Myrtle.

N.B.—Wood block floors should not be used as (*a*) they lack spring and are tiring to work on ; (*b*) they are likely to become uneven.

CLEANING OF FLOOR

(*a*) Should be swabbed daily with cold water or swept with wet sawdust, and should be washed each vacation. Oily surface treatments are unsuitable as leaving disagreeable surface marking on clothes and hands, being unpleasant for forward lying movements and containing greasy matter causing floor to become slippery.

(*b*) Oiled floors should not be scrubbed.

CEILING

Should be flat, and light in colour.

WALLS

Plain plaster enamelled walls, because easily washable.

VENTILATION

Natural ventilation is to be preferred. Windows should be placed so that there is good cross-ventilation, and at different levels, some high, some low. All windows should open to their full extent and be easily worked from the floor. The windows should be of unbreakable glass or be wired across unless the wall bars are placed in front. Doors or windows should be so placed as to allow for full complement of wall bars.

A semi open-air gymnasium is recommended where practicable, with rolling shutters or widely opening windows down one side of gymnasium. If this is not desired, different types of windows may be used.

(*a*) French windows. If the ground outside is suitable these can be placed at one end of the gymnasium or down one side.

(*b*) Sliding or casement windows. If these are placed extending to 4 ft. 6 in. from the floor it gives a feeling of space and better ventilation.

(*c*) Swing windows. If placed above casement windows these are useful for ventilation, especially in bad weather.

All window winding gear should be either carried in the window recesses or arranged in suitable places in accordance with the architect's apparatus position plan.

ARTIFICIAL VENTILATION

If this has to be used the ventilators should be placed into and flush with the walls.

ARTIFICIAL LIGHTING

This should be specially considered so that there is good, even light. There should be no hanging or unprotected lights.

HEATING APPARATUS

The heating can be either electric or hot water and should be capable of maintaining a temperature of 50-60° F.

(*a*) Modern panel or " Ray " heating recommended.

(*b*) Radiators should, in the interests of safety, be recessed to avoid interference with or damage to apparatus. They must be placed so as to heat the whole room and should be easily accessible for dusting.

(*c*) Radiators should be spaced equally down each side wall to ensure uniform heat.

(*d*) Connecting heating pipes between radiators should be carried under floor and in walls.

APPARATUS

(1) Wall bars. 30-40, or fewer according to size of gymnasium and average number in class (9 ft. 2 in. or 8 ft. 2 in. in height by 2 ft. 8 in. or 2 ft. 9 in. in width, 1⅜ in. to 1½ in. in circumference). Top bar projecting and no bars recessed.

(2) Single sets of bars. Two on either side of gymnasium, each having one fixed upright, one outer travelling upright and two bars.

Or :

Double sets of bars, if room not wider than 34 ft. (two sets), with central upright suspended from and travelling along overhead rail, bars counterbalanced. The moving upright should fit at the side of the fixed upright rather than in front of it, when drawn to the side of the gymnasium. (Double sets of beams cannot be fitted with safety if room wider than 34 feet.)

(3) Ropes (4½ in. circumference). Twelve to 20, in two sets of six or ten, arranged across the gymnasium at such distance as to allow ropes and bars to be used simultaneously.

There is a trackway patent which is an ideal method of fixing, allowing the ropes to be drawn vertically to each side of the gymnasium when not in use.

(4) Forms—12.

(5) Box—1 or 2.

(6) Buck—1. Fitted with non-slip shoes.

(7) Horse—1. Minimum height 3 ft. 1 in., adjustable to 4 ft. 10 in. or more. Fitted with non-slip shoes.

N.B.—The size of vaulting apparatus should vary according to use by boys and/or girls.

(8) Jumping stand and ropes—2 sets.

(9) Saddles—4-8.

(10) Small stools—30. And shelves for storage.

(11) Mats—4. Fitted with handles for hanging on fixed hooks. Non-slip lining.

(12) Beating boards—2. Fitted with cross bar.

(13) 3-wing posture mirror.

(14) Window ladder. Vertical, six square wide and 16 ft. high. Flush with wall when not in use, 3 ft. 6 in. from wall when in use.

(15) Light portable apparatus (Jumping poles, boxes, etc.).

(16) Agility mattress.

TEACHER'S ROOM

A small room with desk and lock-up cupboard, fitted with shower, lavatory and wash-basin, and situated near dressing room.

REST ROOM

Containing first-aid apparatus.

DRESSING ROOMS

Oblong or corridor-shaped.

(*a*) Situation. Two dressing rooms directly communicating with gymnasium and passage so that ingoing and outgoing classes do not interfere with each other. Can be placed on either side of passage entrance to gymnasium.

(*b*) Fittings. Simple seating accommodation, unpolished white wood benches, 1 ft. 8 in. high by 4 ft. long. Peg and boot box for each pupil.

In boarding-schools it may be convenient for change to be made in dormitories.

Lavatories. A minimum of two if school cloak-room near.

(*c*) Room for showers. Corridor-shaped, situated behind and communicating with dressing-rooms. Arranged so that pupils can run through the showers, or partitioned off by rubber curtains.

Shower bath should be made of material which is easy to keep clean. Terrazzo is suggested.

(1) Showers—6-10. Or better, a third of the number of children.

Should be fixed so that the water strikes obliquely, and below head level rather than from above, with adjustable rose.

(2) Heat should be regulated from main, thermostat limiting temperature to 103° F.

Water should be turned on by pressure of handles only, thus obviating water being left running. There should be a hot and cold tap to each spray, but a maximum temperature, fixed with a thermometer near door.

(3) Hooks should be placed in as accessible a place as possible, but care should be taken that clothes hung up do not get wet.

(4) A good drain for waste water is essential.

(5) There should be duck boards on floor under showers, with a corrugated rubber strip or cork mat to prevent slipping, or non-slip tiles with a slight rib.

(6) There should be adequate ventilation.

N.B.—Plunges are apt to cause flooding and are not very sanitary unless they are under good control and organisation.

Drying Room, containing hot pipes for towels.

Each pupil should have a numbered cage locker in which the towel is hung.

CONTINENTAL HOSPITALS

In the spring of this year a delegation of the Middlesex County Council toured Europe to inspect some of the newest hospitals. Copies of their report* have now been placed in the R.I.B.A. Library, two of which are available for loan. The delegation, numbering seven, consisted mainly of chairmen of health and hospital committees, and included the County Architect, Mr. W. T. Curtis [*F.*].

We have thought it desirable to give a fairly full abstract of this report as it contains many points of interest to hospital architects, and is a useful survey of the newest hospital practice on the Continent. The notes may also be of service to architects wishing to visit these hospitals.

THE BEAUJON HOSPITAL

The first building visited was the new Beaujon Hospital in Paris. This enormous reinforced concrete hospital houses 1,000 patients, and is at present the only vertical hospital on a really large scale in Europe. It has been fully illustrated in the French technical journals, which can be consulted in the R.I.B.A. Library, but it can here be stated that the design has one feature which differs in principle from American practice. As far as possible each of the fourteen floors is self-contained, that is to say, it is a miniature hospital in itself. A typical floor contains four wards, each of 14 beds, and six beds in side wards ; these are mainly on the south side. On the north are X-ray rooms, examination and dressing rooms, linen stores, floor service kitchens and offices for the medical staff. Each of the six lower floors has a theatre block at its eastern extremity. The idea governing this arrangement of self-contained floors is that of reducing traffic, particularly the movement of patients from floor to floor for examination or operation. " Dispersion " is avoided as much as possible, since lateral movement is largely avoided and vertical movement is reduced to the transport of essentials. Each floor has even its own medical staff.

The out-patient department contains a casualty ward of 14 beds and 2 cots. Patients received after 5 p.m. are placed in this ward until the next morning. The delegation approved this system as avoiding disturbance of wards by new admissions at all hours of the night and preventing the slender night staff from being called on to deal with unforeseen emergencies.

The wards are high and unusually spacious, being 30 ft. wide, with beds arranged at right angles to the walls and vertical windows between them. The floors are unusual ; they are surfaced with earthenware tiles, 15 inches square and close-jointed. The delegation found this floor " very quiet and pleasing."

The accessory departments are elaborate. There is the curious provision of a crèche for the babies of the nursing staff, most of the nurses being young married women.

MARIENKRANKENHAUS, LUDWIGSHAFEN

This is another new vertical hospital of reinforced concrete It is, however, smaller (400 beds) than the Beaujon Hospital and is lower. The central tower-like block has nine floors and the two wings, containing the wards, have five floors. The central block contains the administrative offices on the ground floor, the chapel (two storeys high) is on the first floor, the operating theatres are on the fourth, and nurses' bedrooms occupy the floors above. All the wards are small, none containing more than six beds, and have a corridor on one side ; this prevents cross lighting and cross ventilation. Some of the single-bed wards for paying patients have private bathrooms ; for these there is a charge of nine marks a day, exclusive of medical attention. At the end of each block of wards is a dayroom. Floors of both wards and corridors are of linoleum, very well laid. This appears to be common practice in Germany and Austria.

Food distribution is according to American practice for vertical hospitals. Adjacent to the main kitchen is a service room with lift battery feeding service rooms on each floor, fitted with steam-heated hot plate, cold store and sink.

The delegation were impressed by the high quality of design and the general air of comfort in the building. They

* County Council of Middlesex. Report of Delegation on their Visit to Hospitals in France, Germany and Austria.

say : " The severe modern aspect of the hospital architecture contrasted strangely with the wealth of curtains, growing flowers and pictures with which the wards and dayrooms were decorated. . . . We considered that the brightness and comfort they added to the wards probably outweighed their drawbacks." At the back of the hospital there is a beautiful sunk garden with pool and fountain ; there are also several acres of vegetable garden for hospital use.

THE HOSPITAL FOR WOMEN AND CHILDREN AT NUREMBERG

This large building is a combined maternity and infants' hospital. It is divided into four main sections for obstetrics, operative gynæcology, non-operative gynæcology and for sick infants. It has a yearly turnover of 1,800 obstetric and 2,000 gynæcological cases.

In the obstetrics section the wards are mainly five-bedded, corridor type, the beds being parallel with the windows. Each group of obstetrics wards has a central dayroom, beautifully furnished, and a nursery at each end. A waiting space for visitors is arranged in each corridor. Each ward has ample bed space, four large windows and a wash basin. At each bed there is a clothes locker, four feet high, recessed in the wall : the floor is covered with thick grey-blue linoleum.

In the non-operative gynæcological section the wards contain eleven beds in two rows ; it was felt that the inner row did not get enough light and air and the conclusion was drawn that corridor-type wards ought not to contain more than six beds. There is, however, a very pleasant dayroom and verandah for the use of patients.

In the infants' hospital the largest wards have only four cots, and all are self-contained, with a combined bathroom and sluice room in one corner. A French window leads to a balcony. These are not continuous, so that light and air are not cut off from the wards below.

The hospital is four years old and cost 5½ million marks. The accommodation is for 200 women (80 obstetric, 120 gynæcological) and 110 children. The main structure is of reinforced concrete and is of " very attractive design, appearance and finish."

TWO TUBERCULOSIS HOSPITALS AT VIENNA

At the Wilheminspital, a large hospital of several detached blocks, a new vertical ward block was inspected. This is five storeys high, and the top floor—for pulmonary tuberculosis—has half its width taken up by a concrete-roofed verandah, the roof sloping upwards and outwards. At each end of the block is a large 10-bed ward, lit on two adjacent sides. Parallel with the corridor and on the south side are three-bed wards. The report discusses at some length the special equipment and organisation.

At the City Hospital of Vienna at Lainz a 320-bed tuberculosis pavilion, built five years ago, was inspected. The building has five floors, of which the fourth and fifth have their greater part given over to wide sun terraces. The terraces are about 24 feet deep, roofed and fitted with awnings, and are also used as exercise grounds in bad weather. In the middle of each verandah is a glazed room from which nurses can observe the patients.

The ground and first floors in the centre contain day and recreation rooms. The largest ward has six beds. The ward windows reach from floor to ceiling, and the sashes can be swung up to the top, leaving the whole front of the ward open to the air ; a shallow balcony, with open iron railing, acts as protection. Here again novel points of organisation are discussed in some detail.

DRESDEN

Two adjacent buildings in the Johannstadt General Hospital were visited at Dresden. In the children's hospital the administrative block contains a lecture theatre for 120 persons, a museum, reading room and children's polyclinic or out-patients' department. The lecture theatre is used for midwives, district nurses, welfare workers, etc., in addition to the nurses of the hospital.

The building is of five storeys and in reinforced concrete ; the total bed accommodation is 180. Each ward has its own balcony, and on the roof is an open-air ward for pulmonary cases. On the ground floor are 25 cubicle wards, separated by partitions, which are of glass above a height of 4 feet. Each is 6 feet wide, 18 feet long and 12 feet high, and is entirely self-contained, with its own bath, sluice, dressing trolley and locker. On the south a glass door opens on to a common verandah, and on the north side is a very wide corridor, in which the sister normally sits at her desk and can see all the children. The purpose of this cubicle ward is to isolate children, usually for nine days, when they are admitted. The other wards are of two, four and six beds, usually divided by glass partitions. The accessory rooms are planned along the north side of the corridors.

THE ORTHOPÆDIC CLINIC AT LEIPZIG

This building of five storeys and built in 1930 has several special features worthy of note. Each floor is stepped back to give verandah space in front of the wards, which are four-bed in the case of adults and seven-bed in the case of children. In the lecture theatre there are wide swing doors behind the lecturer opening on to a long hall, so that students can observe the gait of patients without leaving their seats. The doors when closed form a blackboard. The long corridor in front of the lecture theatre is fitted with an overhead " railway " about 60 feet long. A pulley runs on this, supporting a patient by the arms when re-learning to walk after a fracture. He can adjust the suspension himself exactly. This device is also fitted in wards.

About half the building is given up to theatres, workshops, gymnasia and departments of hydrotherapy and physiotherapy.

THE MARTIN LUTHER HOSPITAL, BERLIN

This is a modern hospital for 420 beds in the Grunewald suburb of Berlin. Since it was built two other hospitals in other parts of the world have been built to the same plan. The central portion is six storeys high, the remainder five, excluding a semi-basement. The entrance is in a central projecting wing on the north side ; in this block are the offices (below) and three pairs of operating theatres (above). The main block of the building runs east and west, and has two further projections on the north side containing accessory departments such as the laundry ; projecting in the centre on the south side is a large block with a central well. The wards are round the outside of this block and in the south side of the main block.

The east wing contains single-bed wards for serious cases, and the west wing single- and two-bed wards for paying patients. All other wards are four- and six-bed. The professor in charge stated that their system of call signals gave the patient better attention than in general wards. Each floor forms a section of the hospital, namely, surgical, medical, gynæcological and obstetric. There are no balconies, but the wards have opening casement doors, with protecting railings.

Book Reviews

INDIAN ARCHITECTURE

THE DESIGN DEVELOPMENT OF INDIAN ARCHITECTURE, *by Claude Batley, A.R.I.B.A. Three paper portfolios. London, 1935, Tiranti. 12s. 6d. each.*

Development of design in architecture may be assumed to be synonymous with evolution, and it is easy to agree with Professor Batley's opinion that Indian architecture, considered from this standpoint, has not received the attention which it deserves. Mr. Havell's works stand out as the only attempt to trace the development of building in India from its source, observing and analysing the effects of new influences such as the Aryan settlement, the birth, growth and decline of Buddhism, and the Mohamedan invasion ; of division by language, by vast distances and an enervating climate, and the resulting difficulties of communication. Mr. Havell has sought always the pure type, where possible the germ, in whatsoever part of India they are to be found, and shown the growth from them to the later more mature and elaborate buildings. Had Professor Batley adopted a similar plan, even though not necessarily agreeing with Mr. Havell's theories, and produced in accordance with it some hundreds of plates instead of fifty-two, the title he has given to the portfolios under review might have been taken more seriously. As it is, he has hardly touched the fringe of the vast subject. His portfolios contain a miscellany of students' measured drawings of examples which it has been convenient for his students to measure (mostly at not too great a distance from Bombay), and which do not furnish even a framework for either historical or geographical or any other arrangement. Consequently the notes are able to give only occasional spotlights of history ; some of them are very interesting, others substitute romance for authority. Bombay is situated in a part of India in which few classic examples of Hindu, and probably none of Mohamedan, architecture are to be found. Most of the work is mixed in style, as the notes admit. The most nearly tpyical Hindu temple shown has Mohamedan arches. The buildings of Gujerat and Bijapur, which supply the bulk of the examples labelled " Mohamedan," are some of the most interesting in India ; but the Bijapur work is a brilliant phase of a local style ; while the Gujerat mosques are Mohamedan in little more than purpose, being Hindu in architectural thought and detail. A good start is made with Plates 1 and 2, illustrating very well the principles of Hindu planning. Plate 3, a Mohamedan parallel, is less successful. It features as Mohamedan the Jami Masjid at Champanir, planned on the Hindu system of octagons, and in almost every detail a Hindu building. The Gol Gumbaz at Bijapur is a masterpiece, but by no means typical. Neither is the garden of the Taj Mahal (another masterpiece) typical, for the typical garden has the building in the centre ; nor is it indigenous to India, as the somewhat ambiguous note might lead us to suppose.

The drawings are good, and often excellent, and had the collection appeared simply as a sketch book, it would have aroused a hope for more. But it has established no claim to be regarded as an exposition of development. The plates and text are well printed, and the portfolios, though frail, are pleasant to look upon.

A. G. SHOOSMITH [*A.*].

A COURSE IN BUILDING CONSTRUCTION

BUILDING CONSTRUCTION AND DRAWING. ELEMENTARY COURSE. *by Charles F. Mitchell. 12th Ed. London. Batsford :* 1935. 6*s.* 6*d.*

The popularity and usefulness of this book is proved by the issue of the present edition, the twelfth, containing upwards of 1,200 illustrations and nearly 500 pages of text.

A considerable amount of new matter has been introduced, both in the letterpress and by new or revised diagrams, in bringing the edition up to date.

A useful diagram might be added in Chapter 1 to show the setting out of a typical drawing with regard to the relative positions of plan, section and elevations, together with the usual information required for office registration, etc., dealing with title, scale, date, number of drawing, etc., as used in a modern office. The " axonometric " presentation of a drawing has been very briefly dealt with in conjunction with Isometric and Oblique projection and Perspective drawing. A simple cube is used in all four cases as the example so as to afford a useful comparison. Further drawings using this method of presentation, but entailing more work, might be added so as to provide an early opportunity for the young student to acquire facility in " axonometric," which is so largely used for architectural sketches and also a better comparison with Isometric projection used throughout the book.

In the chapter dealing with Brickwork no mention is made of rat-trap bond used so extensively where external walls are to be tile hung. Only isolated piers are dealt with. These are nearly out of date on account of the space required, and also the substitution of steel in modern construction. The details of the bonding of brickwork to the reveals of door and window openings is practically confined to an opening with a half-brick rebate, no drawing being given with a rebate of 2½ ins. In the chapter on Partitions the portion dealing with slab partitions requires to be amplified, in view of the extended use of this form of construction, with diagrams showing the methods of carrying, bonding and finishings to doors, etc., when they form part of the partition. These details might be added even to the exclusion of those detailing so exhaustively with the trussed partitions.

A certain amount of confusion might be avoided if the more common terms were used ; such, for example, as " quick hardening cement," where much uncertainty is likely to occur in the mind of the student between what is generally known as " rapid hardening " and " quick setting "; again, the term " ferro-concrete " embraces the systems of construction in which mild steel rods are embedded in concrete and those in which steel sections are surrounded or encased in concrete.

A few of the uses of plywood, lamin board, etc., are described and illustrated ; these might with considerable advantage be taken further and form a comparison with similar framed work.

Some of the new matter would appear to be too advanced for a student in his first or second year of the study of this subject. For instance, the details dealing with the application of sheets of metal lathing, covered with a waterproofed cement, fixed to metal holdfasts, in the wall, in order to form a cavity to an existing or a new brick wall might be considered more

suitable for inclusion in Part 2 of this work. Likewise the fixing of marble linings, plate and lattice girders and the steel roof trusses for wide spans.

The concluding chapter dealing with Building Quantities and Memoranda will require to be used with the utmost care in view of the issue of the revised Standard Method of Measurement.

The examination questions, always useful as test exercises, have in most cases been brought up to date, but with the rapid advance in modern construction it would seem useless to include those set in 1911.

There is no doubt that Mitchell's *Building Construction*, Part 1, will continue to provide a good grounding in the subject for students of the future, and will be found as a work of reference on the shelves of Architects, Surveyors and Builders, as it has done for so many years.

K. H. Read, F.S.I. [*A.*].

OXTED AND LIMPSFIELD

Sketches of Oxted and Limpsfield (*Part I*), *by Arthur Keen. A portfolio of reproductions of twenty pencil sketches. Published by Mr. Keen at Snatts, Limpsfield, Surrey. 1935. £1 1s. 0d.*

During the past few years Mr. Arthur Keen [*F.*], who lives at Limpsfield, has spent his leisure by making a series of sketches of old buildings in Limpsfield and its neighbouring town, Oxted. Twenty of these have now been excellently reproduced by Messrs. Sprague & Co., and have been published by Mr. Keen in a portfolio. The reproduction is so good that practically none of the original quality of Mr. Keen's delicate and sympathetic pencil-work is lost. The sketches show an architect's feeling for the materials of which the buildings he has drawn are built, and show clearly enough that Mr. Keen was drawing places not merely because they have "caught his eye," but because he knows them well, and has lived in and about them, and has absorbed the quality of their social environment. The extent to which he has succeeded in conveying the life of his buildings is the more remarkable when we note that he has refrained from fussing up the foregrounds, as is so often done in topographical drawings of this type with what are only too often ill-drawn figures. The artistic merits of the drawings add to their value as accurate graphic records. Limpsfield and Oxted, like all the best villages in Surrey and Sussex, are fast being submerged under a blanket of gentile suburban building for professional and business men, who don't care for the urban quality of their own small towns which survive, as Mr. Keen has shown, often unimpaired. If Mr. Keen succeeds in exciting in the people of Oxted and Limpsfield a greater sense of the beauty of their own villages, he will have done something which should earn him the lasting gratitude of all the people living there.

A few copies of the portfolio remain, and can be obtained direct from Mr. Keen.

ENGLISH BRICKWORK

A History of English Brickwork, *by Nathaniel Lloyd. A new and abridged edition with a preface by Leslie Mansfield. London. Greville Montgomery. 1935. 12s. 6d.*

Nathaniel Lloyd's *History of English Brickwork* is a standard work which was universally recognised when it was first published. In it Mr. Lloyd's scholarship and wide knowledge of facts were displayed with a prodigality which gave the volume its only defect, from the point of view of intending purchasers: its price was necessarily large, and was beyond the limits of the ordinary architectural purse. Mr. Greville-Montgomery has done a service for which many will be grateful in publishing an abridged edition at a price more in conformity with the means of most of us, though there is no pretending that by reduction the book has not lost—that is inevitable, but, on the whole, Mr. Mansfield has done his work excellently, and has carried out the difficult work of eliminating 200 pages of pictures and of making whatever omissions could be made in the text without impairing the meaning. The text is substantially the same as in the large edition, and is well printed. If the new edition succeeds in making Mr. Lloyd's book better known, and bringing it into the private libraries, it will have done much to help towards an understanding and wider appreciation of the merits of the most characteristic English building material.

THE TECHNIQUE OF BRICKLAYING

Bricklaying for Beginners, *by William Frost. London: English Universities Press. 2s. 6d.*

In his introduction to this elementary but thorough book the author says that the most important stage of a bricklayer's career is the beginning, because it is then that the habits that can make a good craftsman will be formed or neglected. He emphasises this belief by devoting a large part of the book to detailed descriptions of the bricklayer's tools, their uses, construction and handling, the position of the bricklayer in relation to the wall, mortar-board and bricks, and, in a long and well-illustrated chapter, discusses the practical uses of the tools. That the author discusses apparently trivial matters is no demerit, because the simplest things are often the most vital. In this the book is superior to the average text-book.

Here are some examples of the author's attention to detail: the mortar-board should be raised on four bricks, thus preventing the bricklayer from injuring his knuckles on the ground or scaffold when taking mortar on his trowel; mortar spilt on the scaffold has caused many injuries from accidental slipping; the bricks to be used should be neatly stacked by the attendant labourer, partly because it reduces the bricklayer's effort in picking them up and partly because waste in chipped and broken bricks is reduced. Mr. Frost gives the interesting piece of information that the best height for a bricklayer is 5 feet 7 inches to 5 feet 9 inches for working with the usual scaffold lift.

The diagrams of the usual bonds in straight walling, quoins and junctions are well set out, the superimposed courses being shown on interleaves of transparent paper. The author emphasises the value of using tracing paper in studying bonds as making drawing quicker and learning more easy. While this book is intended for the apprentice, it may be read by the architectural student with profit.

AMERICAN TEXTBOOK ON ENGINEERING EQUIPMENT.

Mechanical and Electrical Equipment for Buildings. *by Messrs. C. M. Gay and C. de Van Fawcett. New York: John Wiley. London: Chapman & Hall. 1935. 25s.*

This is an interesting textbook for architectural and technical schools where courses are given in mechanical and electrical equipment for buildings. The information given is elementary

and deals with basic principles, but an endeavour has been made to describe the subjects in language understood by both architect and engineer. No claim is made that this is a handbook for the purposes of engineering design.

In water supply, drainage and plumbing, heating and electrical equipment, the general principles of design are similar in both America and in this country. The extra information in this textbook—possibly not found in many English textbooks of the same nature—deals with the special plumbing and heating arrangements necessary in skyscraper erections.

The two sections on air conditioning deal fully with the subject. In this country we may have to instal such systems in buildings of the cinema nature, and in certain factories where definite degrees of temperature and humidity are necessary for certain industrial purposes. We fight shy, however, of installing air conditioning in hospitals and dwelling-houses—which is common in America—after our past experience of systems of the plenum nature in schools and hospitals. Of course, we in this country have not the same extremes of both heat and cold to contend with that they have in America.

The short section on acoustics gives little information that is not available in Knudsen and Bagenal's and Wood's books on acoustics. The book is valuable for reference by students who take courses in these subjects.

HOUSING MEMORANDA EXPLANATORY OF THE HOUSING ACT, 1935

The Ministry of Health, following the excellent precedent which has been established in the department, has issued a series of five memoranda on the operation of the 1935 Housing Act. Primarily intended for the use of local authorities' officers, they are none the less of immediate interest to all architects concerned with housing, and to housing students and experts.

Memorandum A. (19 pages, price 4d.) is a general description of the provisions of the Act and supersedes Memoranda (Hous. 2) which had been previously issued.

Memorandum B. (30 pages, price 6d.) deals with the provisions of the Act relating to overcrowding, and details the steps which local authorities should take to assent the execution of their duties. It contains a very clear tabulation of the overcrowding standards, the numbers permitted per house, the basis of area calculations, etc.

Memorandum C. (11 pages, price 2d.) deals with redevelopment areas and is intended to be of use primarily to the larger urban authorities. It starts with an excellent paragraph pointing out the importance of planning and suggesting co-operation between the Housing and Town Planning Committees of local authorities in the earliest stages.

Memorandum D. (8 pages, price 2d.) explains the financial provisions and the new form of subsidy available to authorities providing accommodation for the abatement of overcrowding.

Memorandum E. (24 pages, price 4d.) explains the new provisions for the consolidation of Housing Accounts and the rent conditions applicable to post-war local authority houses.

All five memoranda are clearly written in terse untechnical language and provide a first-class instance of official common sense and wisdom. They can be obtained from H.M.S.O. or its agents at the prices stated.

QUANTITY SURVEYING

ELEMENTS OF QUANTITY SURVEYING, *by Arthur J. Willis, F.S.I. London: Crosby Lockwood, 1935. 15s.*

When I picked up this book by Mr. Willis, I knew in advance it was one I should be able, wholeheartedly, to praise, and I was not disappointed.

It is difficult to write a new treatise on Quantity Surveying, but he has succeeded, and his book should be in the hands of every student desirous of entering the quantity surveying profession, and should be read carefully by every architect whether or not he takes out his own quantities.

Mr. Willis has placed before him, so clearly and concisely as to be incapable of misconstruction, the work involved from "working up" to the initial stages of "taking off," and he has been meticulously careful not to "rattle" him by including in the latter work of other than the simplest nature.

Once the student has mastered Mr. Willis' teaching he is well on the way to tackle the more complicated problems of the fully-qualified quantity surveyor.

J. W. THEOBALD.
V.-P. S.I

PLUMBING ACCORDING TO COCKER

Minimum Specifications for Drainage Work, Sanitary and Cold Water Plumbing and for the "Combined System"; Institute of Registered Plumbers' Pamphlets, Nos. 1 and 2, May 1933, and No. 3, June 1935.

These three pamphlets, issued by the Institute of Registered Plumbers, make a praiseworthy attempt to lay down the best practice in drainage, plumbing and cold water supply. We suppose and hope that further pamphlets will follow on other matters with which this Institute is competent to deal.

The value of "ex cathedra" publications of this nature can hardly be over-estimated, providing they do not tend to stifle invention or inculcate too abject a submission to the tyranny of building bye-laws.

The latest of the three pamphlets under review is incomparably the best in its format, grammar, illustrations and every other respect. It forestalls therefore an obvious criticism of its forerunners, the illustrations of which are especially poor and the text of which needs heavily editing. Indeed, the phrasing is so artless as to be ambiguous where it is not downright misleading. The pamphlets, however, are admirably annotated, and No. 3 is as good as one can expect even for the rather unconscionable price of 2s.

The minor criticisms in detail which occur to one are too numerous to be set forth here.

The importance of these specifications is such as to make a thorough and competent editing and reprinting of all three numbers very desirable. We venture to make the suggestion that *ad hoc* members from the architectural profession and the allied trades could most usefully be invited to sit on the Committees which draw up these documents. A truly representative and unanimous consensus of opinion would thus be embodied and a wider publicity obtained.

It ought to be made clear that these specifications, although copyright, may be altered and adapted for general use by interested parties.

Subject to these provisos they will have the status of B.S.I. Specifications, and architects will be well advised to specify their plumbing and drainage work to comply with these specifications as a minimum.

In the main the specifications embody (and, providing the price be reduced, will broadcast) the tenets of the best standard practice consistent with reasonably economical design and construction. They will, no doubt, be a powerful factor in the movement to standardise the requirements of local authorities, water supply companies and the like.

Review of Periodicals

Attempt is made in this review to refer to the more important articles in all the journals received by the Library. None of the journals mentioned are in the Loan Library, but the Librarian will be pleased to give information about prices and where each journal can be obtained. Members can have photostat copies of particular articles made at their own cost on application to the Librarian.

SCHOOLS AND COLLEGES

BYGGE KUNST (OSLO). *Vol. XVII. No. 9. P. 201.*

Lutheran Theological College, Oslo (Ove Bang); a modern building with lecture hall, chapel, students' rooms, etc.

ARCHITECT AND BUILDING NEWS. *Vol. CXLIV. 1 November. P. 137.*

Social education centre, Lyons (M. Roux-Spitz); a suburban cultural centre, including a crèche and clinic, dispensary, baths and washhouses, class-rooms, gymnasium, library and lecture hall, justices' offices, and a theatre to seat 1,000.

LIBRARIES

BAUGILDE (BERLIN). *Vol. XVII. No. 24.*

Large library buildings. Important article by Prof. R. Oehler, of Frankfurt-a-M., illustrating many recent libraries in Europe and U.S.A., and, of particular interest, the scheme for a vast new central library, Vienna.

MONATSHEFTE F. BAUKUNST U. STADTEBAU. *Vol. XIX. No. 9. September. P. 321.*

Competition schemes for vast University Library, Frankfurt, fully illustrated. A useful reference.

BYGGE KUNST (OSLO). *Vol. XVII. No. 9. P. 218.*

Christiana State archives building, designed in the State building department; an interesting smallish library.

ARCHITECT AND BUILDING NEWS. *Vol. CXLIV. 1 November. P. 121.*

BUILDER. *Vol. CXLIX. 1 November.*

Edward Turner Sims Library, University College, Southampton (Gutteridge & Gutteridge [*F.L.*] and Sir G. G. Scott, R.A. [*F.*]).

SOUTH AFRICAN ARCHITECTURAL RECORD (JOHANNESBURG). *Vol. XX. No. 9. September. P. 269.*

The new public library, Johannesburg (John Perry [*F.*]).

MILITARY BUILDINGS

JOURNAL, ROYAL ARCHITECTURAL INSTITUTE OF CANADA. *Vol. XII. No. 10. October. P. 162.*

Fort York Armoury, Toronto (Marani, Lawson and Morris). The chief part of this building is a large "lamella" roofed drill hall, 125 feet by 238 feet, with spectators' gallery.

INSTITUTIONAL BUILDINGS

BYGGE KUNST (OSLO). *Vol. XVII. No. 9. P. 209.*

The Norwegian Medical Society building, Oslo. A small institutional building with library, meeting room, club rooms and offices.

SWIMMING BATHS

MODERNE BAUFORMEN. *Vol. XXXIV. 11 November. P. 575.*

Two swimming baths, etc., near Berne. The first by v. Senner and Beyeler, an ice rink and wave bath also. Good straightforward planning with ample provision for sightseers. The second by Hector Egger. Both good examples.

CONSTRUCTION MODERNE (PARIS). *Vol. LI. No. 6. 10 November. P. 114.*

Trouville open-air sea-water swimming bath (Brillard de Laujardière and R. Puthomme). Long description with equipment and construction details.

JOURNAL ROYAL SANITARY INSTITUTE. *Vol. LVI. No. 5. November. P. 324.*

J. Murray Easton [*F.*]; paper on open-air swimming pools.

SPORTS BUILDINGS

CONSTRUCTION MODERNE (PARIS). *Vol. LI. No. 4. 27 October.*

La Suze Stadium at Alfort (Brillard de Laujardière and Puthomme) includes open-air sports grounds and enclosed gymnasia, etc.

BAUMEISTER. *Vol. XXXIII. 11 November. P. 369.*

Hanseatenhalle, Hamburg. A huge sports hall for athletic displays, mass meetings, etc.; internal length of arena approx. 450 feet, seats 30,000, stands 40,000 persons.

COMMERCIAL BUILDINGS AND MARKETS

CASE D'OGGI (MILAN). *Vol. XIV. No. 11. November. P. 672.*

Fish market, Milan (Amorosi). Concrete truss building.

CONSTRUCTION MODERNE (PARIS). *Vol. LI. No. 5. 3 November. P. 95.*

Social Assurance building, Prague (Havlicek and Honzik). One of the finest recent modern buildings in Europe, fully illustrated and described.

OFFICES

MONATSHEFTE F. BAUKUNST U. STADTEBAU. *Vol. XIX. No. 7. July.*

Data sheets of office equipment; sizes of furniture, etc.

AMERICAN ARCHITECT. *Vol. CXLVII. No. 2638. October.*

Modern office in Rockefeller Centre (Reinhard and Hofmeister).

TRANSPORT BUILDINGS

MONATSHEFTE F. BAUKUNST U. STADTEBAU. *Vol. XIX No. 8. August. P. 303.*

Buildings for Berlin-Schöneberg Station.

BAUGILDE (BERLIN). *Vol. XVII. No. 25. P. 784.*

Rebuilding of the Zoological Gardens Railway Station, Berlin.

INDUSTRIAL BUILDINGS

ARKITEKTEN (HELSINGFORS). *1935. No. 9. P. 137.*

S.C.K. factory and offices, Kotka. A straightforward concrete building.

THEATRES AND CINEMAS

ARCHITECTS' JOURNAL. *Vol. LXXXII. No. 2129. 7 November.*

Cinemas. A useful reference number. Eighty pages of examples, data, etc.; with special articles on planning, construction, interior design and equipment.

CHURCHES

MONATSHEFTE F. BAUKUNST U. STADTEBAU. *Vol. XIX. No. 8. August. P. 270.*

Chapel, Leversbach in der Eigel, Germany, by Rudolf Schwarz. A charming little small building in rubble stone and timber, with some interesting detail and equipment.

Accessions to the Library
1935-1936—I *(Continued).*

ALLIED ARTS AND ARCHÆOLOGY

Societies

SUSSEX ARCHAEOLOGICAL SOCIETY
Sussex Archaeological Collections. Vol. lxxvi. 1935. R.
(Including :
Davidson-Houston (Mrs.). Sussex monumental brasses.
Winbolt (S. E.). Remains of the Roman bridge . . . Alfoldean.
Hannah (I. C.). West Hoathly Church.)

YORKSHIRE ARCHAEOLOGICAL SOCIETY
The Yorkshire Archaeological Journal. Part 127 (vol. xxxii, pt. 3). 1935. R.

BRUSSELS : COMMISSIONS ROYALES D'ART ET D'ARCHÉOLOGIE
Bulletin. lxxiiie année—1934 (July-Dec.). 1934. R.

ATHENS : BRITISH SCHOOL AT ATHENS
*Annual. No. xxxiii. Session 1932-1933. 1935. R (2)
(Including : Megaw (H.). Byzantine architecture in Mani.)

PALESTINE : DEPARTMENT OF ANTIQUITIES
Quarterly. Vol. v, Nos. 1 and 2 [in one vol.]. 1935. R.

BUILDING SCIENCE

MITCHELL (C. F. *and* G. A.)
*Building construction and drawing.
Elementary course.
12th ed. Lond. : Batsford. 1934. R.
Now added to Loan Library.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH
Building research exhibit, Manchester [College of Technology], October, 1935.
pam. 9¾″. Lond. : H.M.S.O. 1935. R.

KELLY, *publ.*
K—'s Directory of the building trades, *etc.*
10¼″. Lond. : Kelly's Directories, Ltd. 1935. £2 10s. P.

Practice and Industry

KNOOP (D.) *and* JONES (G. P.)
[Collected papers on the history of building. Mostly from Trans. Quatuor Coronati Lodge.]
11 pams. in one. 11″. v.d.
Presented by Mr. Douglas Knoop.

Materials

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH : FOREST PRODUCTS RESEARCH
Records :—
No. 3. (Wood preservation series, No. 1.) Experiments on the preservation of mine timber. Progress report No. 1.
pam. 9¾″. Lond. : H.M.S.O. 1935. 6d. R.

SINGLETON-GREEN (J.)
Concrete engineering. Vol. i, Practical concrete ; Vol. ii, properties of concrete.
2 vols. 7½″. Lond. : Chas. Griffin. 1933. 8s. per vol. P.

SUENSON (E.)
Die Einwirkung von salzsäure auf Ziegelsteinfassaden. (Ingeniorvidenskabelige skrifter, No. 40.)
9¾″. 47 pp. Copenhagen : Danmark Naturvidenskabelige Samfund. 1935. (5.00 kr.) R.

COPPER DEVELOPMENT ASSOCIATION
*Copper data. (Publication No. 12.)
2nd ed. 1935. R (2).

COPPER DEVELOPMENT ASSOCIATION
*Sheet copper-work for building. (Publication No. 5.)
2nd ed. 9¾″. London. 1935. R.
First ed. is in Loan Library.

COPPER DEVELOPMENT ASSOCIATION
Copper-steels to resist corrosion. (Publication No. 4.) (Engineers' Note-book series.)
2nd ed. pam. 6¾″. Lond. 1935. R.

COPPER DEVELOPMENT ASSOCIATION
*The Use of copper and brass for domestic water services.
6th ed. 11″×8½″. Lond. 1935. R (2).

COPPER DEVELOPMENT ASSOCIATION
The History and development of copper and its use as . . . tubes for domestic purposes. (Copper for gas and water installations, *cover title.)* By S. F. Dunkley. (*From* Gas Times.) (Publication No. 13.)
8½″. Lond. 1935. R.

COPPER DEVELOPMENT ASSOCIATION
Brasses, and other copper-zinc alloys. (Publication No. 6.) (Engineers' Note-book series.)
3rd ed. pam. 6¾″. Lond. 1935. R.

Construction

FROST (WILLIAM)
Bricklaying for beginners.
7¼″. 120 pp. Lond. : English Universities Press. 1935. 2s. 6d. R.

Sanitary Science and Equipment

GAY (C. M.) *and* FAWCETT (C. DE V.)
Mechanical and electrical equipment for buildings.
9″. viii + 429 pp. New York : John Wiley. 1935. £1. P.

DANSK INGERIÖRFORENING
Ingeniörvidenskabelige skrifter, B No. 15 :—Cementrors syrefasthed. [Acid-resistance of cement pipes.] By E. Suenson. [With English summary.]
9¾″. Copenhagen. 1935. (Kr. 7.50.) R.

UNITED STATES : TREASURY DEPARTMENT—PUBLIC HEALTH SERVICE
*Studies in illumination. IV. Daylight in buildings.
pam. 9¼″. Washington : Supt. of Documents. 1935. (15 cents.)
Presented (2) by Mr. James E. Ives, senior physicist to the U.S.A. Treasury Department.

CARTLIDGE (T.)
The Heating and ventilation of buildings. (Thesis for Final Examination, July 1935.)
typescript. 11¾″. 1935. *Presented by the author.*

Proofing

FIRE OFFICES' COMMITTEE
Definitions and recommendations . . . in connection with liquid fuel, *etc.*
pam. 8″. Lond. [193—.] R.

ANTI-NOISE LEAGUE

Noise abatement. The first annual report for 1934-35. 1935. R.

Silencing a noisy world . . . report of the conference on the abatement of noise.
pam. 9¾″. [1935.] 6d. R.

Societies

BRITISH WOOD PRESERVING ASSOCIATION

Journal. Vol. v. 1935. R.

ENGINEERING

Societies

INSTITUTION OF CIVIL ENGINEERS

Minutes of proceedings. Vol. 238 [for 1934]. 1935. R.
(*Including :* Sydney Harbour Bridge. By various authors.)

LIVERPOOL ENGINEERING SOCIETY

Transactions. Vol. lvi. 61st session [1934-35]. 1935. R.
(*Including :* Wilkinson (L. St. G.). New Brighton [Cheshire] improvements [sea-front, bathing pool, *etc.*].)

ENGINEERING ASSOCIATION OF CEYLON

Transactions for 1934. Pt. 1. 1934. R.
(*Including :* Weerasinghe (O.). Practical application of town planning in Ceylon.)

Transactions for 1935. Pts. 1 and 2. 1935. R.
(*Including :* Wynne-Jones (N.). Restoration of Queen's House.)

SURVEYING

INTERNATIONAL FEDERATION OF SURVEYORS

Proceedings of the fifth Congress . . . Lond., . . . 1934.
8¼″. Lond. : Chartered Surveyors' Institution. [1934.] R.

Societies

CHARTERED SURVEYORS' INSTITUTION

Session 1935-36. Card. 1935. R.

TOPOGRAPHY

ALDEN, *publ.*

Alden's Oxford guide.
Reprint. 6″×5″. Oxford : Alden & Co. 1933. 1s.
Presented by Mr. J. W. Curtis.

BAEDEKER (KARL)

Handbooks :

[Germany.]

6½″. Leipzig, *etc.*, and Lond. : Geo. Allen & Unwin. 19—.

Northern Germany, excluding the Rhineland. 17th ed. 1925. 15s. P.

The Rhine, *etc.* 18th ed. 1926. 15s. P.

Southern Germany. 13th ed. 1929. 15s. P.

NEW YORK

King's views of New York.
14½″. 72 pp. New York : Manhattan Card Publishing Co. [1932.]
Presented by Mr. P. S. Hudson [*A.*].

TOWN AND COUNTRY PLANNING

LLOYD (T. ALWYN)

*Planning in town and country. 1935.
Another copy has been bought for the Loan Library.

LE CORBUSIER, *pseud.*

La Ville radieuse. Elements d'une doctrine d'urbanisme pour l'équipement de la civilisation machiniste.
ob. 9¼″×11½″. 346 pp. incl. pls. Boulogne : L'Archit. d'Aujourd'hui. [1935.] (£1 5s.) R. & P.

BANGOR *City, Wales*

The Development of Bangor.
9¾″. 67 pp. Bangor. 1935. R.

INTERNATIONAL HOUSING ASSOCIATION, *Frankfurt am Main*

Beseitigung von elendsvierteln, *etc.*—Slum clearance and reconditioning of insanitary dwellings. (*In German, English, and French.*)
2 vols., text and plates. 11½″. Stuttgart : Hoffmann. 1935. (15s. the 2.) R. & P.

CORNISH (VAUGHAN)

The Scenic amenity of south-eastern England. (*From* Trans. South-Eastern Union of Scientific Societies, xl.)
pam. 8½″. n.p. 1935. R.

RANDOLPH (WILFRID)

Notes on the treatment of ancient towns.
pam. Lond. : Heath Cranton. 1935. 1s. R.

Concert of Old Music on Old Instruments

HELD AT THE R.I.B.A. ON MONDAY, 11 NOVEMBER

The first concert given by the Music Club was precisely of the type that the R.I.B.A. should aim at : it gave an evening of complete enjoyment in another art and of a distinctive quality. In the Florence Hall, which is as good for sound as it is for sight, we heard a programme of old music played in various combinations on three old instruments—a harpsichord, a viola da gamba, and a viola d'amore. The modern equivalents of these instruments have, we acknowledge, their merits, it is even possible and enjoyable to play this old music upon them ; most of us are bound to do so if we wish to hear them in our own homes ; but when we hear it played on the instruments for which it was written we realise how much we have lost in quality of tone in return for greater contrast in mere volume. The simplest accompaniment or two-part writing on the harpsichord sounds full and richly varied in tone (on the piano it sounds thin and quaintly archaic) ; and even modern ears, debauched as they are with the din of modern life, could detect the sympathetic tones which were called forth by the double strings untouched by anything so gross as the human hand. These things are like the quality and surface texture which can make the difference between a good and a commonplace building.

Three artists of first water gave us this quality by a combination of the music, the instruments and their playing : we all responded (like the double strings) sympathically to Mr. Martineau Fletcher's thanks to Miss Alice Ehlers, Miss Eva Heinitz and Miss Violet Brough : their playing, both in solos and together, was not only beautiful but of amazing technical accomplishment. A programme of old music always contains, for the amateur, unusual names, whose music one is always glad to hear : but it is extraordinary how the historic giants justify their stature ! The greatest piece of music of the evening was Bach's Fantasia in C minor for harpsichord solo ; what a superb thing this is, heard upon the right instrument. Space will not allow a comment upon the many items of the programme, all delight-giving and especially the final one, in which the three artists played together. Perhaps one criticism of this old music (not of its playing) may be made : there seemed to be a certain monotony of effort in the quick finales. They are mostly of the bustling sort ; these were succeeded by the feeble-in-form Rondo to be finally exploded by the all-glorious finales of Beethoven, in which there is no declension from the heights of the first and slow movements.

PATRICK ABERCROMBIE [*F.*].

Correspondence

THE RE-PLANNING OF BATH

63 Egerton Gardens,
London, S.W.3.

To the Editor, JOURNAL R.I.B.A.

SIR,—Some months ago I was called in as outside consultant for a Planning Scheme which is being prepared by a joint Committee of Bath, the Bath-Avon Rural District and the Somerset County Council. Last month there was published a series of proposals for replanning the centre of Bath which the Corporation are embodying in a Bill to be laid before Parliament. I ask your permission to state that I have had nothing whatever to do with the proposals contained in the Bill for which Parliamentary sanction is to be sought apart from the Planning Scheme (which, of course, will be also submitted to Parliament in due course).

The proposals were shown to the Town Planning Committee and to myself for the first time on 8 November. I understand that they have been prepared by the City Engineer in consultation with Mr. Taylor, the architect on the Advisory Committee set up under the Bath Act, 1925.

I am, Sir, your obedient servant,
PATRICK ABERCROMBIE [*F.*].

THE ASSOCIATION OF SCIENTIFIC WORKERS

To the Editor, JOURNAL R.I.B.A.

DEAR SIR,—A joint committee nominated by the Association of Scientific Workers, the Institute of British Executives and the Engineers' Study Group on Economics has undertaken an investigation into the problem of the unemployed scientific, technical and executive workers. The information at present available is fragmentary, and we therefore ask the courtesy of your columns to request such of your readers as are unemployed to send in a letter or postcard to Mr. Evans, Institute of British Executives, Swan House, 133, Oxford Street, W.1, giving :

(*a*) Name and address. (*b*) Age. (*c*) Qualifications and field of work. (*d*) Unemployed since.....

There is reason to believe that various schemes of national development will be created, and it is therefore important to know of available scientific and technical ability.

Yours faithfully,
BERNARD W. HOLMAN,
(*Hon. Gen. Sec.*)

ARCHITECTURAL GRAPHIC RECORDS COMMITTEE.

c/o S.P.A.B.,
20, Buckingham Street,
Adelphi, W.C.2.

To the Editor, JOURNAL R.I.B.A.

SIR,—The Architectural Graphic Records Committee, to which you gave some reference on p. 1020 of the recently completed volume, has decided to make a beginning with the card index which will be kept in the Institute library. The Committee, however, will not be able to catalogue even the 20,000 entries already recorded unless further funds are forthcoming. A recent donation of £2 from Mr. Edwin Gunn [*A.*] should serve as a reminder to individual architects that this is a matter which will prove useful to most architects who may be concerned with restoring old buildings or writing about them. The Hon. Treasurer, Mr. G. H. Palmer, will gladly acknowledge any sums sent to him at 18, Beauchamp Road, East Molesey, Surrey.—Yours faithfully,

F. HERBERT MANSFORD, *Hon. Sec., A.G.R.C.* [*F.*]

Obituaries

MAJOR G. A. HARRIS, C.B.E., D.S.O.

Major G. A. Harris, Permanent Secretary to the Ministry of Home Affairs for Northern Ireland, died in Belfast on Wednesday, 30 October, at the age of 56.

Major Harris was educated at Trinity College, Dublin, joined the civil staff of the Admiralty in 1904, and transferred to the Irish Local Government Board in 1906, becoming Private Secretary to Sir Henry Robinson, Vice-President of the Board, in 1912. During the War he fought with the 12th Middlesex Regiment and the 15th London Regiment, was twice mentioned, and awarded the D.S.O. in 1917. In May 1919 he was appointed Secretary of the Departmental Committee on Irish Education, in the following September Secretary of the Irish Public Health Council, and in February 1920 Registrar-General of the Nursing Council for Ireland. When the Government of Northern Ireland was set up he was transferred to Belfast, and became Assistant Secretary to the Ministry of Home Affairs in 1921 and Permanent Secretary in 1927.

Major Harris served on the Architects' Registration Council as the representative of the Government of Northern Ireland, and Mr. W. H. Ansell [*F.*] has written the following memoir on his work in that connection :—

" The Architects' Registration Council has been fortunate in that the Civil Servants who have acted as Ministerial or Government nominees have taken a real personal interest in the proceedings of the Council and have made valuable contributions to its work.

" By the death of Major Harris the Council has suffered the loss of a member who can ill be spared. Major Harris was the representative of the Government of Northern Ireland. His long and varied experience in the conduct of public affairs made his services particularly useful to the Council in such matters as the compilation of Regulations and Standing Orders and the proposed amendments to the Registration Act, he being the chairman of the Amending Act Committee.

" His interventions in the Council's discussions were always enlightening, clear and brief, and his slight engaging stammer only appeared to give point and emphasis to his remarks.

" Major Harris had been ill in the earlier part of the year, but had so far recovered as to be able to attend the last Council meeting. The news of his death, therefore, came as a shock to all who knew him."

OSBORN CLUSE HILLS [*F.*]

Mr. O. C. Hills died on 21 August 1935 after a long and painful illness. Born in 1865, he was educated at the City of London College, and afterwards at the Architectural Association. He served his articles in his father's office, Messrs. Hills & Fletcher, at Bow, and in 1886 he was taken into partnership, the firm becoming Messrs. Walter A. Hills & Son. Amongst the architectural works for which he was responsible are the restoration of Bow Parish Church ; the Guardians' Offices, Poplar ; the Bromley Casual Wards ; and the remodelling of the Workhouse at Poplar.

Mr. Hills did a great deal of surveying work, and for a long period held the appointment of District Surveyor in Hackney, West Strand and Westminster East. He was at one time president and secretary of the District Surveyors' Association (London). He was also a member of the Institute of Technical Engineers.

A keen student of London, Mr. Hills was a Liveryman of the Merchant Taylors Company, a member of the London Society, Guild of Freedom, and John Carpenter Club. He was also a Governor of St. Bartholomew's Hospital.

He was the author of various papers on the Building Acts and a man of literary tastes. He wrote amongst other things a monograph on the restoration of Bow Church, as well as many pamphlets on the history of the City Guilds and the Merchant Taylors Company.

HERBERT WILLIAM CRUICKSHANK [*F.*]

Herbert William Cruickshank was born at Aberdeen in January 1886. He was educated at Robert Gordon's College, Aberdeen, and received his professional training in the office of A. Marshall Mackenzie, LL.D. [*F.*], of Aberdeen and London. In 1907 he joined Dr. Mackenzie's staff at his London office, and was subsequently one of his senior assistants, in which capacity he worked on the Waldorf Hotel and Australia House. He joined the Artists' Rifles in 1915, and was later commissioned to the 5th Gloucestershire Regiment, with which he served in France and Italy. He was afterwards seconded to the Royal Engineers, where he made the acquaintance of his partner, Mr. H. T. Seward [*F.*]. He commenced practice in Manchester, May 1919, in collaboration with Mr. H. T. Seward. The following are some of the most important works which have been carried out :—Southport Technical College ; New Admission Block, Mid-Wales Counties Mental Hospital ; Williams Deacon's Bank ; Manchester Babies' Hospital ; Extensions at County Mental Hospital, Prestwich ; and many large new buildings for business purposes. Amongst competition successes were the following :—1st premium, Southport Technical College ; 1st premium, New Flats, Glasgow ; 1st premium, Bootle Housing Scheme ; 2nd premium, Swindon Municipal Buildings. Mr. Cruickshank was a former member of the Council of the Manchester Society of Architects, and was acting as hon. secretary to the House Committee at the time of his death.

JOHN HALL [*Retd. F.*]

Mr. John Hall, who died in Sunderland on 28 July, at the age of 65, was a native of South Shields. He received his professional training under the late Mr. John Tillman, of Sunderland. In 1895 he entered into partnership with Mr. James Henderson in that town, and this continued until the departure of the latter to Canada in 1906. They carried out various important undertakings, including the imposing central offices of the River Wear Commissioners, in St. Thomas Street ; the Maritime Buildings, St. Thomas Street ; and the Sunniside Chambers, West Sunniside. Mr. Hall was later responsible for the Bethesda Memorial Hall, Tatham Street. The War Memorial Cross in the grounds of Christ Church, is a parish memorial which has been referred to as one of the most beautiful in the North, and will long be evidence of the careful and meticulous expression of his high artistic taste. He was elected a Fellow of the Institute in 1907.

Mr. Hall was in the fortunate position of being able to devote much time to the study of architectural history and archæological research, and his opinions were eagerly sought and highly esteemed by his colleagues and those interested in these subjects. He was specially well versed in Celtic and Saxon crosses, and in the Monastic remains of the Saxon church of St. Peter's, Monkwearmouth, Sunderland. Articles by him on these subjects appeared in various authoritative publications, and in volumes of the Sunderland Antiquarian Society, of which he was a member from its inception in 1899, and for two years chairman of its Council (1914 and 1915).

Mr. Hall took a deep interest in the town of his adoption, was a Past Master of the Fenwick Lodge of Masons, and a Member of the Public Libraries, Museum and Art Gallery Committee, rendering important services to that body, especially in recent plans for proposed Central building extensions. During the war he took up duties as a special constable.

John Hall was thorough and reliable in all that he undertook. He was of a gentle personality, and at the same time possessed a decided individuality based on carefully considered convictions. His integrity and kindly nature made him a man beloved by all who had the good fortune to know him, and his town and many friends are the poorer by his passing.

JOHN STACEY DAVIS [*Retd. F.*]

Mr. John Stacey Davis, in point of election the oldest member of the R.I.B.A., died on 20 April 1935, at the age of 90. He died at such an old age that he had outlived all his contemporaries, and it is hard to trace any facts about his career, but he worked for the greater part of his professional life for the St. Aubyn firm in London. He was elected an Associate of the Institute in 1865, and a Fellow in 1914, and in 1915 he retired from practice and lived at Plymouth until his death.

EDWARD JOSEPH DOLMAN [*L.*]

Mr. E. J. Dolman was born in 1873 and died on 20 May 1935. A pupil and later assistant of the late Mr. W. B. Wood [*A.*], he set up in practice at 12 Queen Street, Gloucester, in 1926, in partnership with Mr. H. Stratton Davies and Mr. C. W. Yates, who are carrying on the practice at the same address.

Mr. Dolman was the architect of several elementary schools in Gloucester, and his work also included business premises and domestic work. He was elected a Licentiate of the Institute in 1911, and was a member of the Council of the Gloucester Architectural Association.

WILLIAM KIRKPATRICK MUNRO [*L.*]

Mr. W. K. Munro, who died on 1 June, was born in 1855, and trained in his father's office ; later becoming a partner. After the death of his father he practised independently until 1924, when he took into partnership Mr. William T. C. Pearce, who is now continuing the practice at the same address, 6 St. Stephen's Avenue, Clare Street, Bristol.

Mr. Munro's work was mainly concerned with the development of large building estates in and around Bristol.

NOTES

THE INSTITUTE OF ARBITRATORS

Practice Arbitration

A Practice Arbitration of a special nature will be held on Tuesday, 3 December 1935, at 6 p.m., at the Incorporated Accountants' Hall (near Temple Station), Victoria Embankment, W.C.2.

The following members of the Institute of Arbitrators will take part in the Arbitration: Arbitrator, Mr. R. W. L. Clench; the parties, Mr. Howard Button and Mr. K. R. Gray. The Arbitrator will be supported by a legal Assessor, Sydney E. Redfern, LL.B., and the award will be made immediately after the hearing. There will be time for a discussion.

The subject matter is one of general interest, being a dispute between two commercial men. A special feature of this Arbitration is the prominence which will be given to a number of errors in procedure.

The conduct of the Practice Arbitration and the subject matter of the dispute will be of interest to all irrespective of their vocation.

Members are reminded that non-members can attend upon notifying the Secretary of their intention. In order that adequate arrangements can be made, please notify the Secretary on or before Saturday, 30 November 1935, whether you intend to be present, but no tickets of admission are required.

HOUSING CENTRE LECTURES

Lectures will be given at the Housing Centre, 13 Suffolk Street, S.W.1, at 6 p.m. on the first Mondays and at 8.15 p.m. on the third Tuesdays in each month. Members of the Centre are invited and are asked to bring a friend.

The Tuesday lectures are designed to illustrate the general aspect of the housing problem. The Monday lectures will be of a more technical nature.

The first lecture was given on 7 October by Miss Elizabeth Denby, who spoke on "The Fabric of a New Community."

The remaining Monday lecture is as follows:—

2 December.—Miss M. R. Baskett, B.A., *Housing Estate Management.*

The subjects of lectures on 6 January, 3 February and 2 March will be announced later.

The Tuesday lectures are as follows:

17 December.—Mr. Kaufmann, Dipl., Ing. (Late Director of Housing, City of Frankfurt, A.M.), *Housing and Territorial Planning in Russia.*

21 January 1936.—The Rt. Hon. Lord Phillimore, M.C., *Housing in Relation to Employment.*

18 February.—Sir Ernest Simon, M.A., M.Inst.C.E., P.C., M.I.Mech.E., *Manchester Gives a Lead.*

17 March.—Sir Fabian Ware, K.C.V.O., K.B.E., C.B., C.M.G. (Chairman Gloucestershire C.P.R.E.), *The Preservation of Urban and Rural Amenities.*

SLADE LECTURES AT OXFORD

Mr. H. S. Goodhart-Rendel, M.A. [*F.*], Slade Professor of Fine Art in the University of Oxford, will give two lectures on *Oxford Architecture* on Wednesdays, 27 November and 4 December, at 5 p.m., in the Ashmolean Museum, Oxford.

ELECTION OF STUDENTS, R.I.B.A.

The following were elected as Students R.I.B.A. at the meeting of the Council held on 4 November, 1935.

Everard: Nutcombe Guy St. George, 6, Bloomfield Road, Epsom, Auckland, S.E.3, New Zealand.

Galloway: Wilfred Bonham, 51, Langdale Road, Thornton Heath, Surrey.

Gelling: (Miss) Dorothy Elizabeth, 8, Somerset Road, Douglas, Isle of Man.

Kayll: Richard Anthony, Willersey, Broadway, Worcs.

Mackay: James Campbell, "Aviemore," Hillock, Polmont, Stirlingshire.

Nightingale: Paul Forster, 16, Briar Walk, Putney.

Young: Leonard James, 5, New Street, St. Martin's Lane, London, W.C.2.

ALLIED SOCIETIES

WEST YORKSHIRE SOCIETY OF ARCHITECTS

The opening meeting of the session 1935-6 took place at the Hotel Metropole, Leeds, on 24 October, when the President, Mr. Victor Bain, gave his address.

Mr. Victor Bain, in his Presidential Address, said that there were signs that this country was at last awakening to the unsatisfactory conditions of housing and planning in our towns, and he cited certain activities on the part of the Government and in Parliament during the past year showing the emphasis laid by all departments on the need for Planning. He referred particularly to the Marley Report; the efforts made by the Minister of Transport towards road improvement, the relief of traffic congestion and public safety; the Restriction of Ribbon Development Act; and the new Housing Act. With reference to the Housing Acts, Mr. Bain spoke of the work of the Society in proffering advice and suggestions and submitting major planning proposals to the Leeds Corporation.

Speaking of the working of the Housing Act in general, Mr. Bain had five major criticisms to make:—

That housing schemes which have been and are being built are unrelated to any general plan. They have just been dumped wherever a piece of vacant land could be cheaply acquired.

That improvement schemes have been too local in character and not part of considered schemes of town planning and redevelopment.

That there has been an absence of co-operation and concerted action on the part of adjoining Local Authorities.

That Local Authorities have failed to realise and apply wisely the statutory powers of control of buildings given to them under the Town and Country Planning Act, 1932.

That many Local Authorities are small, and neither capable nor willing to undertake town planning proposals.

He suggested that all planning should be under the ultimate control of a National Planning Council, who would ensure that the plans submitted by Local Authorities conformed to a general plan for the whole country.

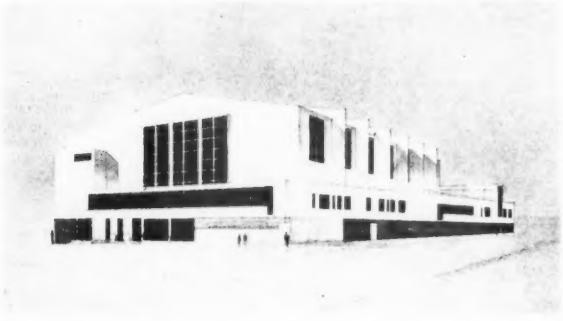
A vote of thanks to the President for his address was proposed and seconded by the Vice-presidents, Mr. Wm. Illingworth, of Bradford, and Mr. R. A. Easdale, of Castleford, respectively.

The Society's prize of £10 10s. was awarded to Mr. Frank Booth, of Cleckheaton, whilst another student, Mr. G. M. Thomas, of Huddersfield, gained an R.I.B.A. Maintenance Scholarship of £50 per annum, with possible extension.

LIVERPOOL ARCHITECTURAL SOCIETY

The H. W. Williams Prize

The Liverpool Architectural Society awards two important scholarships to its members: The Honan Scholarship and the H. W. Williams Prize for the promotion of architectural design in concrete. The former prize is next to be awarded in 1936 for a design of a block of residential flats on a central Liverpool site. The award of the H. W. Williams Prize was announced recently at a meeting of the Society by the President, Lt.-Col. Ernest Gee.



Seven sets of designs had been received for an ice rink on a site adjoining Monument Place, in Liverpool, and that by Mr. R. E. E. Beswick, a fourth year diploma student in the Liverpool school, won the prize. In commenting on the designs Col. Gee said that it was clear that only few of the competitors had done much investigation into the problems, and had appreciated the economic as well as the technical issues involved—such, for instance, as the need for adequate means of meeting the heavy overhead costs of an ice rink by providing extra revenue-producing facilities such as shops, restaurants and car parks. Mr. Beswick's scheme was described as an exceptionally fine solution. The author, said Col. Gee, had taken the old competition liberty of juggling with the floor levels, realising that it was cheaper to build than to excavate. He had utilised every inch of the site advantageously, and an adequate car park had been provided. His placing of the rink on the site and the provision of good sized hockey pitches, promenades, etc., had been incomparably better than any other schemes. The only defects in the jury's opinion were a rather unimposing entrance, a poorly shaped band platform and the concentration of the balcony seating on one side, but these, it was felt, were comparatively unimportant. The winner, said Col. Gee, while completely fulfilling the practical requirements had most truly interpreted the spirit of the competition. His design was a plastic conception in reinforced concrete. Wide bay spacing and cantilevered overhangs had been thoroughly exploited, and in plan section and elevation there was coherence and balance.

HAMPSHIRE AND ISLE OF WIGHT ARCHITECTURAL ASSOCIATION

Presidential Address by Colonel Gutteridge

At the first meeting of the Session held in the Magistrates' Room at the Castle, Winchester, on 25 October, Lieut.-Colonel R. F. Gutteridge, T.D. [*F.*], delivered his Presidential Address. He bespoke a hearty welcome for the Conference next year, and then asked two questions: (1) What has been achieved in the past 100 years both architecturally and professionally? ; and (2) what of the future? The "Pilgrims' Progress" of the profession was one of which they might be justly proud, but much had still to be done. Reviewing the phases through which architecture had passed, he referred to the nineteenth century attitude with its reliance on "the styles." A new outlook, he said, followed the War, and he found it difficult to express any views on so-called Modernism, but Sir Giles Scott had aptly said that neither school (Thinkers and Feelers) was entirely right nor entirely wrong. As to the future, the standard of architecture and the status of the architect would, he was sure, steadily increase because education of the architect and of the public would improve. One result would be a tendency for all local authorities to have an architectural department as a separate entity, and not under the borough or city engineer. When it came to large schemes consultants should be called in or a competition held. As to the future of architecture as an Art, they had to ask two questions: Where are we going? What is Modernism? In his view the great test of architecture of any era was whether it aptly fitted into its surroundings, and its use. There was no question of style, for they all knew and loved buildings in all styles. That, he thought, was the Modernist's aim. To-day they were calling science to their aid, and the successful man was he who could relate this with the æsthetic. The many and varied materials given to them would call for many varying treatments, but, although some of them might even think that the limited materials of 30 years ago made their problems easier, would they return to it? He thought not, for there was an adventure in any building unknown to them, for no two problems were alike, and the method of construction suitable for one case would be totally unsuited for another.

Mr. Ingalton Sanders [*F.*], past-president and chairman of the Allied Societies Conference, presided for the discussion which followed, and proposed a vote of thanks to Colonel Gutteridge for his able address. The address struck him particularly because it departed from tradition and took them into a much more live and human atmosphere.

Mr. C. Lovatt Gill [*F.*], vice-president, in seconding, expressed his sympathy with the President's remarks on modern work and modern buildings. Hampshire, he said, was known at the Royal Institute as a progressive body, and their Secretary should be congratulated on their position and on the work the Public Relations Committee was doing.

Mr. H. S. Sawyer [*F.*] (Winchester), continuing the discussion, said that he was particularly interested in the President's remarks about Modernism because he thought that was perhaps the most exciting thing going on. It was creating a great deal of interest and should be encouraged, provided it was kept within the right lines. But he was afraid that in many cases behind the desire to be connected with Modernism was the mania for being in the fashion, and this was apt to lead to Modernism which did not pay attention to the sound principles of ethics and design. Mr. Sawyer gave instances in which he said attention had not been given to the use of proper materials, and another in which a building had not been related to its surroundings. In the second case almost the copy of an Olympia house had been dumped in a suburban street with higgledy-piggledy houses of the 1900 type. In the one case the architect had not used the right material, and in the other he had not paid attention to the site requirements or suited the building to its various needs.

Mr. Thompson spoke of the danger of following the modern lead without a proper regard for surroundings. Was it possible, he wondered, to produce a definite English style? He spoke of the advantages of modern Georgian work, and remarked that popular modern architecture did not seem to have the same dignity. Furniture and interior fittings and decoration had, he said, if anything, advanced more, and the general public certainly required a lead in education on architecture and its allied arts of furnishing, fabrics and colour. A lot could be done through the manufacturers, for if they could influence good taste in that direction they would gradually influence architecture as a whole.

Mr. Jackson, on the subject of slum clearance, remarked that it was not a big problem in Hampshire, but in the industrial districts architects could be trusted to know something about it.

Mr. A. L. Roberts [*F.*] (Hon. Secretary) emphasised that it was important to see that they provided the houses which met their

clients' needs, which attended to matters of convenience, and which would not lead to trouble in the future. While he was interested in the official architect, he expressed the opinion that there was a great field for private practice also. There was no doubt that in the future appointments in Local Government service for architects would increase. He referred to the difficulties of designing with standardised elements—doors, windows, etc. Finally, he referred to the clever way in which their President had solved a difficult problem at Southampton University College, where his new building had to join on with an existing building. He had had his bricks specially made, and his practical solution of a difficult problem was a very clever piece of work.

At the conclusion of the discussion the meeting considered the Secretary's report of the Council's proceedings, in which he alluded with great regret to the death of a very old member, Mr. E. Cooper Poole. The most important matter reported was the work of the Public Relations Committee. It was very gratifying that the Council of University College, Southampton, had entrusted to them the publicity work in connection with the opening of the new Edward Turner Sims Library by H.R.H. the Duke of York.

The President, referring to this, said he felt sure it was a great feather in the cap of the Association and of Mr. Roberts that they had been used for propaganda purposes by University College, Southampton, and he assured the members that the R.I.B.A. attached great importance to the functions of the Public Relations Committee, in which Hampshire had given such a good lead.

SOUTH WALES INSTITUTE OF ARCHITECTS

Below is a list of the lectures arranged jointly by the South Wales Institute of Architects (Central Branch) and the Institute of Builders (South Wales Branch), to be held during the coming session :—

21 February.—Edward Maufe, M.A. [*F.*], " Modern Churches."
6 February.—F. R. Yerbury [*Hon. A.*], " How the Housing Problem is Solved Abroad."
19 March.—G. Grey Wornum [*F.*], " Modern Architecture and the Craftsman."

All the lectures will be illustrated by lantern slides.

On 17 October a lecture was given by Mr. E. R. Jarrett [*A.*] on " Commodity, Firmness and Delight."

Notes from the Minutes of the Council

21 October 1935

OBITUARY

The President referred to the great loss which the Institute and the profession had suffered by the death of :

Sir Walter Tapper, K.C.V.O., R.A., President R.I.B.A. 1927-29 ;

Major Harry Barnes, Chairman of the Architects' Registration Council, Vice-President R.I.B.A. 1923-26, Member of Council.

On the proposition of the President, it was resolved that the sincere sympathy of the Council be conveyed to the relatives of the late Sir Walter Tapper and the late Major Harry Barnes.

THE R.I.B.A. STATUTORY EXAMINATION FOR DISTRICT SURVEYORS, OCTOBER 1935

The Board of Architectural Education reported that at the Examination held in October, five candiates sat, of whom the following were successful :—

Goulden, Gerald L.
Whittaker, John H.

THE R.I.B.A. EXAMINATION FOR BUILDING SURVEYORS, OCTOBER 1935

The Board reported that three candiates sat for this Examination, and that the following were successful : —

Cash, Frank A.
Entwistle, Ronald.

SCIENCE STANDING COMMITTEE

The Science Standing Committee reported that in accordance with the terms of Bye-law 52, Dr. R. E. Stradling [*Hon. A.*] had been co-opted as an additional member of the Committee.

STANDARDISATION OF BUILDERS' IRONMONGERY

The Science Standing Committee reported that they had appointed Mr. Thos. E. Scott (Chairman) to represent the Royal Institute at a Conference called by the British Standards' Institution to consider the standardisation of Builders' Ironmongery, and on the sub-committee appointed, as a result of the Conference, to formulate a standard specification for axle pulleys.

THE EIGHTH NATIONAL CONFERENCE OF THE COUNCIL FOR THE PRESERVATION OF RURAL ENGLAND

It was reported that Mr. E. Guy Dawber and Professor S. D. Adshead, the R.I.B.A. representatives on the C.P.R.E., had been appointed as the R.I.B.A. delegates to the C.P.R.E. Annual Conference held at Newcastle-on-Tyne from 10 to 13 October.

BRITISH WATERWORKS ASSOCIATION : STANDING COMMITTEE ON WATER REGULATIONS

Major C. F. Skipper [*F.*] and Mr. R. J. Angel [*F.*] were re-appointed as the R.I.B.A. representatives on the British Waterworks Association Standing Committee on Water Regulations.

PUBLIC RELATIONS COMMITTEE

It was resolved to ask the Board of Architectural Education and the Competitions Committee each to nominate one representative to serve on the Public Relations Committee.

JUNIOR MEMBERS COMMITTEE

The following members of the Junior Members Committee were appointed to serve on the Committees referred to :—

Mr. T. Mitchell [*A.*] : Competitions Committee.
Mr. J. E. Kean [*A.*] : Salaried Members' Committee.
Miss Blanco White [*Student*] : Town Planning and Housing Committee.
Mrs. Janet Pott [*A.*] : Women Members' Committee.

THE SALARIED MEMBERS COMMITTEE

On the recommendation of the Salaried Members Committee Mr. R. R. Barnett [*A.*] was appointed to represent the Institution of Professional Civil Servants on the Committee.

THE SOCIAL COMMITTEE

Mrs. H. V. Lanchester was re-appointed Chairman of the Social Committee, and it was resolved to write to Mrs. Lanchester, expressing the cordial thanks of the Council for her services to the Social Committee in the past.

THE LONDON BUILDING ACT COMMITTEE

On the recommendation of the London Building Act Committee it was resolved that the Committee be dissolved, the work for which the Committee was formed having been completed, viz., that of making recommendations for the amendment of the London Building Act for consideration by the L.C.C. Advisory Committee.

It was further resolved that any matters arising from London building practice should be referred to the Practice Standing Committee.

We regret that owing to pressure of space a number of Allied Society notices have had to be held over until the next number.—ED.

FOREIGN RELATIONS COMMITTEE

The R.I.B.A. has been invited to assist and co-operate in the work of the newly-formed British Council for Relations with Other Countries and the Council have decided to set up a Foreign Relations Committee for this purpose.

THE R.I.B.A. ARCHITECTURE MEDALS: THE ESSEX, CAMBRIDGE AND HERTFORDSHIRE SOCIETY OF ARCHITECTS

It was reported that the Jury appointed to make the award of the R.I.B.A. Architecture Medal for the area of the Essex, Cambridge and Hertfordshire Society of Architects had made their award in favour of Merchant Taylors' School, Rickmansworth, designed by Mr. William G. Newton, M.C., M.A. [*F.*]

The award was formally approved by the Council.

DONATION TO THE PARLIAMENTARY SCIENCE COMMITTEE

On the recommendation of the Science Standing Committee, it was agreed to make a donation of £5 to the Parliamentary Science Committee for the current year.

DONATION TO THE R.I.B.A. BUILDING FUND

The cordial thanks of the Council were conveyed to the Transvaal Provincial Institute of the Institute of South African Architects for their generous donation of twenty-five guineas to the New Building Fund.

MEMBERSHIP

The following members were elected: —

As Hon. Associates	3
As Fellows	7
As Associates	118
As Licentiates	7

Election 2 December 1935.—Applications for membership were approved as follows: —

As Fellows	10 applications
As Associates	106 ,,

Reinstatement.—The following ex-members were reinstated: —

As Licentiates: Stephen Joseph Alles.
Norman Boothroyd.

Resignations.—The following resignations were accepted with regret: —

William Armour Arbuckle [*L.*].
James Crossland [*L.*].
James Page [*L.*].
Benjamin Sattin [*L.*].

Transfer to the Retired Members Class.—The following members were transferred to the Retired Members' Class: —

As Retired Associate: Gordon Pettigrew Graham Hills.
As Retired Licentiate: Walter Harry Woods.

Notices

THE THIRD GENERAL MEETING MONDAY, 2 DECEMBER 1935, 8 P.M.

The Third General Meeting of the Session 1935-36 will be held on Monday, 2 December 1935, at 8 p.m., for the following purposes: —

To read the Minutes of the Second General Meeting held on 18 November 1935; formally to admit members attending for the first time since their election.

To read the following paper: "The Work of Beresford Pite and Halsey Ricardo," by Mr. H. S. Goodhart-Rendel [*F.*].

To present the London Architecture Medal 1934 to Messrs. Sir John Burnet, Tait and Lorne [*FF.*] for their building, The Royal Masonic Hospital, Ravenscourt Park, W.

INFORMAL GENERAL MEETING WEDNESDAY, 11 DECEMBER 1935

The Second Informal General Meeting will be held on Wednesday, 11 December 1935, at 6.15 p.m., when there will be an open discussion on "Architectural Education—its Present and Future."

The Chairman will be Mr. L. H. Bucknell [*F.*].

Amongst the opening speakers will be: Professor Walter Gropius, Mr. H. S. Goodhart-Rendel [*F.*], Mr. Howard M. Robertson [*F.*], S.A.D.G., Miss Ruth Churchill [*Student*], Mr. L. W. Thornton White [*A.*], Mr. G. A. Jellicoe, [*A.*].

Tea will be served from 5.30 p.m.

The attention of members is particularly drawn to the fact that, at the request of a number of assistants, the meeting will be held at 6.15 p.m., instead of 6 p.m., as in the case of previous meetings.

BRITISH ARCHITECTS' CONFERENCE, SOUTHAMPTON, 24-27 JUNE 1936

The Annual Conference next year of the Royal Institute of British Architects and of its Allied and Associated Societies will take place at Southampton from 24 to 27 June 1936.

The Hampshire and Isle of Wight Architectural Association have in hand the preparation of a most attractive programme and particulars will be issued in due course.

THE R.I.B.A. LONDON ARCHITECTURE MEDAL, 1935

The attention of members is drawn to the Form of Nomination and the conditions, subject to which the award will be made, for a building built within a radius of eight miles from Charing Cross during the three years ending 31 December 1935, issued separately with the current number of the JOURNAL. Any member of the Royal Institute is at liberty to nominate any building for consideration by the Jury.

The Nomination Forms should be returned to the Secretary R.I.B.A. not later than 29 February 1936.

THE NATIONAL ASSOCIATION OF WATER USERS

Members are reminded that the National Association of Water Users, on which the R.I.B.A. is represented, exists for the purpose of protecting the interests of consumers.

Members who experience difficulties with water companies, etc., in connection with fittings are recommended to seek the advice of the Association. The address of the Association is 46 Cannon Street, London, E.C.4.

NEW BUILDING MATERIALS AND PREPARATIONS

The Science Standing Committee wish to draw attention to the fact that information in the records of the Building Research Station, Garston, Watford, is freely available to any member of the architectural profession, and suggest that architects would be well advised, when considering the use of new materials and preparations of which they have had no previous experience, to apply to the Director for any information he can impart regarding their properties and application.

CHRISTMAS HOLIDAY LECTURES TO BOYS AND GIRLS

The ninth series of informal talks on Architecture to boys and girls will be given at the Royal Institute of British Architects during the forthcoming Christmas holidays.

At the invitation of the Council of the Royal Institute of British Architects Mr. G. A. Jellicoe, A.R.I.B.A., has kindly consented to give the talks this year. They will be illustrated by lantern slides, and Mr. Jellicoe has chosen as his subject—

"The Architecture of Gardens."

1. *Italian Gardens*

Influence of climate on garden design—evergreen, stone and water—The early Renaissance in Florence—Gardens

of Rome, Tivoli and Frascati—The later gardens of Tuscany —Gardens of the Northern lakes.

2. French Gardens

Early French châteaux—Vaux-le-Vicomte and Chantilly—Le Notre and Versailles—A glimpse round Austria and Germany—Schönbrunn, Veitschöcheim and Kassel.

3. English Gardens

Trees, Turf and Flowers—The medieval garden—The Elizabethan garden—Influence of the Continent: Italian, French and Dutch gardens in England—The English School of Landscape Architecture—Formal gardens swept aside—The English Park.

The lectures will be given in the Henry Jarvis Memorial Room, in the new R.I.B.A. building at 66 Portland Place, W.1, on the following dates :—

Monday, 30 December 1935, at 3.30 p.m.
Wednesday, 1 January 1936, at 3.30 p.m.
Friday, 3 January 1936, at 3.30 p.m.

Tickets for any or all of the lectures may be obtained from the Secretary of the Royal Institute of British Architects, 66 Portland Place, London, W.1. The tickets are free.

Owing to the limited seating space of the hall it is hoped that application will not be made for more tickets than can be used.

Competitions

The Council and Competitions Committee wish to remind members and members of Allied Societies that it is their duty to refuse to take part in competitions unless the conditions are in conformity with the R.I.B.A. Regulations for the Conduct of Architectural Competitions and have been approved by the Institute.

While, in the case of small limited private competitions, modifications of the R.I.B.A. Regulations may be approved, it is the duty of members who are asked to take part in a limited competition to notify the Secretary of the R.I.B.A. immediately, submitting particulars of the competition. This requirement now forms part of the Code of Professional Practice in which it is ruled that a formal invitation to two or more architects to prepare designs in competition for the same project is deemed a limited competition.

BURY: NEW TOWN HALL

The Council of the County Borough of Bury invite architects of British nationality domiciled in the United Kingdom to submit, in competition, designs for a new Town Hall.

Assessor: Mr. J. Hubert Worthington, O.B.E. [*F.*].

Premiums: £500, £300 and £150.

Last day for receiving designs: 31 December 1935.

Last day for questions: 30 September 1935.

Conditions of the competition may be obtained on application to the Town Clerk, Municipal Offices, Bury, Lancs. Deposit £2.

CARDIFF: NEW GENERAL HOSPITAL

The Glamorgan County Council are proposing to hold a competition for a new General Hospital, and Mr. E. Stanley Hall [*F.*] has been appointed to act as Assessor. No conditions are available yet.

COATBRIDGE: PUBLIC BATHS AND PUBLIC HEALTH OFFICES

The Town Council of the Burgh of Coatbridge invite architects resident and practising in Scotland for a period of at least two years to submit, in competition, designs for Public Baths and Public Health Offices.

Assessor: Mr. Wm. B. Whitie [*F.*], President of the Royal Incorporation of Architects in Scotland.

Premiums: £250, £150 and £75.

Last day for receiving designs: 30 November 1935.

Last day for questions: 19 October 1935.

Conditions may be obtained on application to the Burgh Surveyor, Coatbridge. Deposit £2 2s.

COLCHESTER: NEW PUBLIC LIBRARY

The Council of the Borough of Colchester invite registered architects who are members of the Essex, Cambridge and Hertfordshire Society of Architects and practise in those counties to submit, in competition, designs for a new Public Library.

Assessor: Professor A. E. Richardson, F.S.A. [*F.*].

Premiums: £150, £125, £75.

The last day for receiving designs has been extended to 14 December 1935.

Last day for questions: 5 October 1935.

Conditions of the competition may be obtained on application to Mr. R. L. H. Hiscott, Town Clerk, Town Hall, Colchester. Deposit £1.

DUNDEE: COLLEGE OF ART

The Dundee Institute of Art and Technology are to hold a competition for the Duncan of Jordanstone College of Art, and Mr. Howard W. Burchett [*A.*] has been appointed to act as Assessor. Conditions are not yet available.

EDMONTON: NEW TOWN HALL BUILDINGS

The Edmonton Urban District Council are proposing to hold a competition for new Town Hall Buildings, and Mr. E. Berry Webber [*A.*] has been appointed to act as Assessor. No conditions are available yet.

HARROW: NEW MUNICIPAL OFFICES

The Urban District Council of Harrow invite architects of British nationality to submit, in competition, designs for new Municipal Offices.

Assessors: Mr. C. H. James [*F.*] and Mr. S. Rowland Pierce [*A.*].

Premiums: £350, £250 and £150.

Last day for receiving designs: 24 January 1936.

Last day for questions: 4 November 1935.

Conditions of the competition may be obtained on application to Mr. Vernon Younger, Clerk of the Council, Council Offices, Stanmore, Middlesex. Deposit £2 2s.

LUTON: NEW SECONDARY SCHOOL

The Bedfordshire County Council are proposing to hold an open competition for a new Secondary School for Boys at Luton, and Professor W. G. Newton [*F.*] has been appointed to act as Assessor. No conditions are available yet.

NEWCASTLE-UNDER-LYME: BLOCK OF SHOPS AND OFFICES

The Borough of Newcastle-under-Lyme are proposing to hold a competition for a new Block of Shops and Offices, and Mr. H. S. Fairhurst [*F.*], of Manchester, has been appointed to act as Assessor. No conditions are available yet.

ROTHESAY: COMPETITION FOR PAVILION

The Rothesay Town Council are to hold a competition for a New Pavilion, for which Colonel J. Maurice Arthur, C.M.G., D.S.O. [*F.*], has been appointed to act as Assessor.

SALISBURY, SOUTHERN RHODESIA: NEW PARLIAMENT HOUSE

The Government of the Colony of Southern Rhodesia invite architects of British citizenship to submit, in competition, designs for a new Parliament House to be erected at Salisbury, Southern Rhodesia.

Assessor: Mr. James R. Adamson [*F.*].
Premiums: £500, £300, £200 and £100.
Last day for receiving designs: 31 January 1936.
Last day for questions: 26 August 1935.
Conditions of the competition may be obtained:—

(*a*) in England from the High Commissioner for Southern Rhodesia, Crown House, Aldwych, London, W.C.2.

(*b*) in South Africa from The Director of Public Works, P.O. Box 365, Salisbury, Southern Rhodesia. Deposit £2 2s.

NORTH BRITISH ARCHITECTURAL STUDENTS' ASSOCIATION COMPETITIONS

The North British Architectural Students' Association invite members (i.e., members of Schools and/or Allied Societies at Manchester, Glasgow, Edinburgh, Leeds, Sheffield, Hull and Newcastle) to submit, in competition, designs for:

1. A Church of England Chapel.
   Assessor: Mr. H. L. Hicks [*F.*].
   Prize: 10 guineas, presented by The London Brick Co. and Forders, Ltd.
2. A Control Tower and Waiting Room for an Aerodrome.
   Assessor: Mr. R. Bradbury [*A.*].
   Prize: 10 guineas, presented by The Cement Marketing Co., Ltd.

Last day for receiving designs: 31 January 1936.
Conditions may be obtained on application to the Hon. General Secretary, N.B.A.S.A., School of Architecture, Armstrong College, Newcastle-upon-Tyne, 2.

COMPETITION FOR JOINT RAILWAY RECEIVING OFFICES IN LONDON

The four main railway companies (L.N.E.R., L.M.S., G.W.R. and Southern) are proposing to hold a competition for a design for Standard Joint Railway Receiving Offices in London, and the following have been appointed to act as Assessors: Mr. L. H. Bucknell [*F.*], Mr. C. Grasemann, Mr. W. H. Hamlyn [*F.*], Mr. Charles Holden [*F.*], Vice-President, R.I.B.A. No conditions are available yet.

COMPETITION RESULTS

BIRMINGHAM: CHAPEL AND CREMATORIUM

1. Mr. Holland W. Hobbiss [*F.*] (Birmingham).
2. Mr. Herbert Jackson [*A.*] (Birmingham).

Commended: Mr. S. N. Cooke [*F.*] (Birmingham), and Messrs. Harvey & Wicks [*F.* and *A.*] (Birmingham).

FIFE: EXTENSIONS TO ASYLUM

1. Mr. W. Alison [*A.*] (Kirkcaldy).
2. Mr. A. D. Haxton [*L.*] (Leven).
3. Mr. W. Alison [*A.*] (Kirkcaldy).

Members' Column

Owing to limitation of space, notices in this column are restricted to changes of address, partnerships vacant or wanted, practices for sale or wanted, office accommodation, and appointments vacant. Members are reminded that a column in the Advertisement Section of the **Journal** *is reserved for the advertisements of members seeking appointments in architects' offices. No charge is made for such insertions and the privilege is confined to members who are definitely unemployed.*

FUTURE PARTNERSHIPS

ASSOCIATE (29), B.A.(Cantab.), with small but interesting and growing practice, wishes to meet an established London architect with modern ideas with a view to working with him on a salary basis and forming a possible future partnership if mutually agreeable.—Box 7115, c/o Secretary R.I.B.A.

MEMBER [*A.*], with small practice, would like to meet *Fellow* wishing to retire or "ease off" with a view to partnership or taking entire charge.—Box No. 1911, c/o Secretary R.I.B.A.

MEMBER with established general practice and good connections in Home Counties would like to get into touch with another architect having similar practice with a view to forming partnership. Own well-equipped office. Domestic, churches, factories and competition work. First class credentials given and expected. All replies treated in strict confidence—Reply Box No. 2111, c/o Secretary, R.I.B.A.

JUNIOR PARTNERSHIP WANTED

A.R.I.B.A., age 31, with wide experience and sound professional connections at home and in Far East, desires to meet senior member with view to partnership. Would prefer to give keen reciprocal services in lieu of premium, or by arrangement.—Box No. 1811, c/o Secretary R.I.B.A.

OFFICES TO LET

Two small communicating rooms in new building near Hanover Square to let, part-furnished, at a moderate inclusive rental. Period by arrangement.—Apply Box No. 2011, c/o Secretary R.I.B.A.

TO LET in modern building in Vigo Street, W.1, fully-equipped architect's office consisting of lobby, private room, 12 ft. 6 in. by 8 ft., drawing office, 16 ft. 6 in. by 13 ft., with built-in plan chest, shelving and benches for five men. On third floor, quiet, excellent north light, telephone, lift, central heating, own lavatory. Rental £150 per annum; Premium to cover fittings, £25. Box 1411, c/o Secretary R.I.B.A.

ROOMS IN OFFICE WANTED

MEMBER requires secure tenure of one or two rooms (unfurnished) in suite of offices with established members, preferably near the Institute. Door and telephone attendance, but no clerical services. Rent to include heat, light and cleaning.—Box No. 1511, c/o Secretary R.I.B.A.

NEW PARTNERSHIPS

MESSRS. FITT & PRIOR-HALE have taken into partnership Mr. L. D. Tomlinson, A.R.I.B.A., and will practice as Fitt, Prior-Hale and Tomlinson, Chartered Architects, at Quadrant Arcade (facing Market Place), Romford, Essex (telephone: Romford 2533), to which all trade catalogues should be sent.

The present practice of Fitt & Prior-Hale will be continued as heretofore at Bedford Row House, 58 Theobald's Road, London, W.C.1.

MR. HORACE FARQUHARSON (*F.*), of 14 North Audley Street, London, W.1, has taken Mr. Donald H. McMorran [*A.*], into partnership.

CHANGE OF OFFICE

MR. ARNOLD SILCOCK [*F.*], has removed his office from the second floor to the ground floor at 3 Verulam Buildings, Gray's Inn, W.C.1, and the new telephone number is Chancery 7059.

NEW OFFICE

MR. G. I. C. HIGHET [*A.*] has opened an office at 21 Tothill Street, Westminster, S.W.1. (Telephone: Whitehall 8303.)

CONTINUATION OF PRACTICE

MR. LAWRENCE H. BOND is carrying on practice at 11 Elmer Street, Grantham, under the name Wilfrid and Lawrence H. Bond.

CHANGES OF ADDRESS

MR. W. ALAN DEVEREUX [*A.*], A.A. Dip., formerly practising at 40 High Street, Reigate, Surrey, has changed his address to Metropolitan Building, 89-91 Queen Street, Melbourne, Australia, where he will be practising in association with Mr. Robert B. Hamilton [*A.*], F.R.A.I.A.

MR. OSCAR A. BAYNE (*A.*), has removed his office from 5 Vigo Street, W.1, to 19 Hobart Place, Eaton Square, S.W.1. Telephone: Sloane 0084.

MESSRS. HERBERT COLLINS & BIRKETT have changed their address from 30 Portland Street to 32 Carlton Crescent, Southampton.

SIR JOHN MARSHALL [Hon. *A.*] has left India for good. His present address is c/o Messrs. Grindlay & Co., 54 Parliament Street, S.W.1, where all communications should be addressed till further notice.

MR. R. J. POTTER [*A.*] is now carrying on practice at 77 Bouverie Avenue South, Salisbury, where he will be glad to receive trade catalogues, etc.

MESSRS. BERTRAM, BERTRAM & RICE, formerly of 28 Holywell Street, Oxford, are now practising at 36 St. Giles', Oxford (Telephone: Oxford 4373), where all communications should be addressed.

MINUTES II

SESSION 1935-1936

At the Second General Meeting of the Session 1935-1936, held on Monday, 18 November 1935, at 8 p.m.

Mr. Percy E. Thomas, O.B.E., President, in the Chair.

The Meeting was attended by about 370 members and guests.

The Minutes of the Opening General Meeting held on Monday, 4 November 1935, having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The Hon. Secretary announced the decease of:—

Sir Walter Tapper, K.C.V.O., R.A., F.S.A., elected Associate 1889, Fellow 1912. President R.I.B.A. 1927-1929. Member of Council 1911-1915, 1923-1924, 1925-1927, 1929-1932. Member of the Art Standing Committee 1910-1914, 1919-1923 (Chairman 1921-1923), 1924-1927 (Chairman 1925-1927).

Major Harry Barnes, elected Associate 1894, Fellow 1911. Major Barnes was a Vice-President of the R.I.B.A. from 1923-1926, a member of the Council from 1919-1923, 1926-1932, and from 1933 until the time of his decease. He also served on many Committees, including the Finance and House Committee, Premises Committee, Slum Clearance Committee and Registration Committee, being Chairman of the latter Committee from 1924-1933. He was the Chairman of the Architects' Registration Council of the United Kingdom from its formation in 1932 until his death.

Sir Henry Tanner, C.B., elected Associate 1878, Fellow 1891. Sir Henry Tanner was Tite Prizeman in 1878.

The Rev. Canon Francis Edward Carter, transferred to Honorary Associateship 1926.

George Alexander Thomas Middleton, elected Associate 1882, transferred to Honorary Associateship 1927. Mr. Middleton was one of the founders of the late Society of Architects in 1884 and was for some years Secretary of that body.

Professor Henry Adams, transferred to Fellowship 1925.

John Bain, elected Associate 1892, Fellow 1900.

Wilfrid Bond, elected Licentiate 1911, Fellow 1920.

Herbert William Cruickshank, elected Associate 1920, Fellow 1931.

William Doddington, elected Associate 1923, Fellow 1928.

Claude Waterlow Ferrier, elected Licentiate 1911, Fellow 1916.

Andrew Ford, transferred to Fellowship 1925.

Herbert Johnson Gayton, elected Licentiate 1931, Fellow 1931.

John Hamilton, elected Fellow 1906.

Herbert Read, elected Associate 1889, Fellow 1899.

Thomas Snowden, elected Licentiate 1911, Fellow 1930.

Arthur Harold Church, elected Fellow 1921, transferred to Retired Fellowship 1934.

John Hall, elected Fellow 1907, transferred to Retired Fellowship 1931.

Osborn Cluse Hills, elected Associate 1896, Fellow 1905, transferred to Retired Fellowship 1930.

William Henry Crease, Retired Member of the Society of Architects since 1913.

John Elford, Retired Member of the Society of Architects since 1914.

Tom Blakeley, elected Associate 1922.

Olive Gertrude Vernon Briggs, elected Associate 1933. Miss Briggs was the Institute Medallist (Essays) for 1934.

Thomas Gardhouse Charlton, elected Associate 1892.

Frank Meakin, elected Associate 1908.

William Small, elected Associate 1921.

Raymond Cyril Wrinch, elected Associate 1901.

Henry Albert Collins, elected Associate 1898, transferred to Retired Associateship 1932.

Vivian Herbert King, elected Associate 1895, transferred to Retired Associateship 1931.

Edgar Wood, elected Associate 1885, transferred to Retired Associateship 1932. Mr. Edgar Wood was a Past-President of the Manchester Society of Architects and a representative of that body on the R.I.B.A. Council 1911-1912.

Henzell Ascroft, elected a Licentiate 1911.

Alexander Lawrence Chapman, elected a Licentiate 1931.

Charles W. Eaglesfield, transferred to Licentiateship 1925.

David Reginald Gray, transferred to Licentiateship 1925.

Frederick Thomas Maltby, transferred to Licentiateship 1925.

William Mitchell, elected Licentiate 1912.

Charles Henry Petty, elected Licentiate 1932.

Reginald Frederick Richards, elected Licentiate 1932.

William Sheen, elected Licentiate 1911.

Arthur Robert Welby, elected Licentiate 1932.

Archibald Herbert Winterburn, transferred to Licentiateship 1925.

Angelo William Robert Simpson, elected Licentiate 1931, transferred to Retired Licentiateship 1933.

And it was Resolved that the regrets of the Institute for their loss be entered on the Minutes and that a message of sympathy and condolence be conveyed to their relatives.

The following members attending for the first time since their election were formally admitted by the President :—

Mr. A. Douglas Clare [*F.*]
Mr. Romilly B. Craze [*F.*]
Mr. C. Beresford Marshall [*F.*]
Major H. Oliver [*F.*]
Miss S. M. Cooper [*A.*]
Mr. C. P. Dickinson [*A.*]
Miss M. N. Grieve [*A.*]
Miss Phyllis G. Hollings [*A.*]
Mr. Gavin Walkley [*A.*]
Mr. S. E. Burrett [*L.*]
Mr. B. B. Fairbank [*L.*]
Mr. L. H. Fewster [*L.*]
Mr. Clifford Strange [*L.*]
Mr. O. Bland [*Student*]
Mr. R. G. K. de Kretser [*Student*]
Mr. G. B. Drewitt [*Student*]
Mr. Brian A. Elam [*Student*]
Mr. R. W. Foreman [*Student*]
Mr. H. A. Fraser-Spooner [*Student*]
Mr. D. Crandon Gill [*Student*]
Mr. E. R. Goodall [*Student*]
Mr. W. D. L. Goodey [*Student*]
Mr. Higford Griffiths [*Student*]
Mr. R. J. Hannam [*Student*]
Mr. D. A. Hogben [*Student*]
Mr. A. H. H. Jenkins [*Student*]
Mr. H. A. P. Kent [*Student*]
Mr. Oscar Leach [*Student*]
Mr. S. C. Lock [*Student*]
Mr. J. Milnes-Smith [*Student*]
Mr. W. R. Morris [*Student*]
Mr. K. Nealon [*Student*]
Mr. G. Pearson [*Student*]
Mr. Herbert J. Powell [*Student*]
Mr. S. G. W. Ross [*Student*]
Mr. G. P. F. Ruxton [*Student*]
Mr. T. Bale Sanders [*Student*]
Mr. C. A. S. Smith [*Student*]
Mr. George Townsend [*Student*]
Mr. Leonard Ward [*Student*]
Mr. Douglas A. S. Webster [*Student*]
Mr. G. J. Whyte [*Student*]
Mr. Hubert W. Woodnoth [*Student*]
Mr. Edmund Woods [*Student*]
Mr. Stanley Woolmer [*Student*]
Mr. C. Wooster [*Student*]
Mr. A. M. J. Wright [*Student*]

Mr. L. H. Keay, O.B.E. [*F.*], having read a Paper on "Housing and the Redevelopment of Central Areas," a discussion ensued, and on the motion of Sir Edgar Bonham-Carter, K.C.M.G., C.I.E., seconded by Alderman Ewart G. Culpin, J.P. [*F.*], Vice-Chairman of the London County Council, a vote of thanks was passed to Mr. Keay by acclamation and was briefly responded to.

The proceedings closed at 10.10 p.m.

Architects' and Surveyors' Approved Society

ARCHITECTS' ASSISTANTS' INSURANCE FOR THE NATIONAL HEALTH AND PENSIONS ACTS

Architects' Assistants are advised to apply for the prospectus of the Architects' and Surveyors' Approved Society, which may be obtained from the Secretary of the Society, 26 Buckingham Gate, London, S.W.1.

The Society deals with questions of insurability for the National Health and Pensions Acts (for England) under which, in general, those employed at remuneration not exceeding £250 per annum are compulsorily insurable.

In addition to the usual sickness, disablement, and maternity benefits, the Society makes grants towards the cost of dental or optical treatment (including provision of spectacles).

No membership fee is payable beyond the normal Health and Pensions Insurance contribution.

The R.I.B.A. has representatives on the Committee of Management, and insured Assistants joining the Society can rely on prompt and sympathetic settlement of claims.

A.B.S. Insurance Department

PENSION AND FAMILY PROVISION SCHEME FOR ARCHITECTS

This scheme has been formulated by the Insurance Committee of the Architects' Benevolent Society and is available to all members of the R.I.B.A. and its Allied and Associated Societies.

The benefits under the scheme include :—

(1) A Member's Pension, which may be effected for units of £50 per annum, payable monthly and commencing on attainment of the anniversary of entry nearest to age 65. This pension is guaranteed over a minimum period of five years and payable thereafter for the remainder of life.

(2) The Beneficiary's Pension, payable as from the anniversary mentioned in Benefit No. 1, but to the widow (or other nominated beneficiary) if the member dies before age 65. The amount of this pension is adjusted in accordance with the disparity between the ages of the member and his wife.

(3) Family Provision. Under this benefit a payment of £50 yearly is made to the dependent from the date of death of the member prior to age 65 until attainment of the anniversary previously mentioned, after which benefit No. 2 becomes available.

Provision can be made for any number of units (of £50 per annum) up to a maximum of £500 per annum.

Pension benefit only may be secured if desired and the pension commuted for a cash sum.

Members are entitled to claim rebate of Income Tax on their periodical contributions to the scheme both in respect of pension and of family provision benefit.

Full particulars of the scheme will be sent on application to the Secretary, A.B.S. Insurance Department, 66 Portland Place, W.1.

It is desired to point out that the opinions of writers of articles and letters which appear in the R.I.B.A. JOURNAL must be taken as the individual opinions of their authors and not as representative expressions of the Institute.

Members sending remittances by postal order for subscriptions or Institute publications are warned of the necessity of complying with Post Office Regulations with regard to this method of payment. Postal orders should be made payable to the Secretary R.I.B.A., and crossed.

R.I.B.A. JOURNAL

DATES OF PUBLICATION.—1935.—23 November ; 7, 21 December. 1936.—4, 18 January ; 8, 22 February ; 7, 21 March ; 4, 25 April ; 9, 23 May ; 6, 27 June ; 18 July ; 8 August; 5 September ; 17 October.